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4,860 CULTURES... 74% SENSITIVE TO

CHLORO

In a study of the sensitivity of various clinically important bacteria to six common antibacterial substances, Goodier and Parry[1] report "...a greater proportion of the individual strains within the various genera sensitive to chloramphenicol."

Numerous other studies draw attention to the continuing sensitivity of stubborn pathogens to CHLOROMYCETIN.[2-8] For example, Modarress and co-workers observe: "The versatile chloramphenicol was useful each year."[2] Petersdorf and associates[3] state: "There has been no increase in resistance to chloramphenicol...during the past three years."

CHLOROMYCETIN (chloramphenicol, Parke-Davis) is available in various forms, including Kapseals® of 250 mg., in bottles of 16 and 100.

CHLOROMYCETIN is a potent therapeutic agent and, because certain blood dyscrasias have been associated with its administration, it should not be used indiscriminately or for minor infections. Furthermore, as with certain other drugs, adequate blood studies should be made when the patient requires prolonged or intermittent therapy.

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Natural History of Thyroid Carcinoma*

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ALTHOUGH the prevalence and incidence of carcinoma of the thyroid gland are low when compared to other types of human neoplasms, thyroid carcinoma probably has a wider spectrum of growth and varying biologic characteristics than do most other malignant human neoplasms. There is both clinical and experimental evidence that thyroid carcinoma is the result of hormonal stimulation of the thyroid gland, and also that thyroid carcinoma is probably subject to biologic, endocrine control by the organism. The dependent nature of some thyroid carcinomas is important in their clinical management.

The data presented here were derived from a study of 293 patients observed at the University of California Hospital from 1920 through 1954 (1). The results of this study would seem to have some bearing on the choice of therapy in thyroid carcinoma. As part of a continuing study of thyroid carcinoma at this hospital, certain preliminary data from a survey of 1,211 cases of thyroid carcinoma from the California Tumor Registry will be cited as pertaining to the evaluation of therapy in this disease(2).

Carcinoma of the thyroid gland is predominantly a disease of females, occurring with a ratio of over 4:1. The disease occurs at all ages but peak incidences of the time of onset of goiter are found in the 20 to 30 and in the 50 to 60 year age groups. When calculated from the time of onset of carcinoma, peak incidences are found in the 30 to 40 and in the 50 to 60 year age groups. There are proportionately higher percentages of males in the first, third and seventh decades. When the age incidence of each of the three types of thyroid carcinoma is studied separately, papillary carcinoma is found to occur at all ages, with a peak incidence in the 20 to 25 year age group. Follicular carcinoma is also found in all age groups with a peak incidence in the 50 to 55 year age group. However, anaplastic carcinoma is mainly a disease of older individuals appearing in the majority of patients past the age of 50 years.

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A classification of thyroid neoplasms is shown in Table I. There are probably two basic types of thyroid carcinoma, papillary and follicular. As the names indicate, papillary carcinoma is characterized by varying degrees of papillary formation in the neoplasm and often by the presence of calcific psammoma bodies; follicular carcinoma is characterized mainly by the formation of thyroid follicles.

TABLE I
CLASSIFICATION OF THYROID NEOPLASMS.

I. Benign
- A. Papillary adenoma
- B. Follicular adenoma
  - 1. Trabecular
  - 2. Macro or microfollicular
  - 3. Spindle cell

II. Malignant
- A. Papillary carcinoma
- B. Follicular carcinoma
- C. Anaplastic carcinoma
- D. Miscellaneous
  - 1. Malignant lymphoma
  - 2. Fibrosarcoma

Three subgroups of follicular carcinoma have been recognized in our studies:

1) Follicular variant of papillary carcinoma. Many thyroid carcinomas of this type have few, if any, papillary structures, although such a pattern may be observed in the metastases. The follicular variant of papillary carcinoma consists of cells with characteristic pale, opaque, relatively large nuclei identical to those of thyroid carcinoma with a predominantly papillary pattern. Our studies have shown that this form of follicular carcinoma, cytologically resembling papillary carcinoma, has a natural history identical to that of papillary carcinoma.

2) Localized follicular carcinoma. These neoplasms appear related to adenomas and have follicular or trabecular patterns, but display local vascular or capsular invasion.

3) Invasive follicular carcinoma. This type of carcinoma may originate from pre-existing follicular adenomas, although as a rule, the origin may not be demonstrable in such benign structures. Included in this group of invasive follicular carcinomas are medullary or solid carcinomas described by Hazard et al.(3), and characterized by the presence of amyloid in the stroma of the neoplasm.

Anaplastic carcinoma, as the name indicates, is an undifferentiated form of thyroid neoplasm displaying little or no follicular formation. Our studies have suggested that anaplastic or dedifferentiated carcinomas of the thyroid gland probably originate from either papillary or follicular carcinomas. Table II shows our present concept of these relationships. The highly malignant, giant-cell, anaplastic carcinoma may appear late in the course of papillary carcinoma. In some instances this form of anaplastic carcinoma may have an epidermoid component. In our studies we have observed carcinomas which were basically papillary, but which contained areas of anaplastic giant cell carcinoma either in the primary neoplasm or in lymph node metastases. This finding is a poor prognostic sign. Conversely, we have observed residual papillary areas in large, rapidly growing, highly malignant, anaplastic giant cell carcinomas. Medullary, spindle-cell and small cell carcinomas seem related histologically and cytologically to follicular rather than to papillary carcinoma, as shown by Table II.

TABLE II
ORIGIN OF ANAPLASTIC CARCINOMA.

Papillary
- Giant cell carcinoma
- Epidermoid carcinoma
- Large cell carcinoma

Follicular
- Medullary carcinoma
- Spindle cell carcinoma
- Small cell carcinoma

Comparison of patterns of neoplastic thyroid tissue observed at autopsy with the original surgical specimens, shows distinct trends toward dedifferentiation and anaplasia at the end-stage of the disease when compared to its beginning.

Sloan(4) has speculated upon the origin of anaplastic carcinomas, and noted the old age level at which these lesions usually occur. He also observed a large number of patients with pre-existing, slowly growing neoplasms suddenly showing rapid growth due to the development of giant cell carcinoma; he also recorded the finding of differentiated and undifferentiated patterns in the same neoplasm. More recently, Frazell and Foote(5) have also indicated "that long standing tumors might be expected to accelerate their invasive properties after years or decades of relative quiescence."

The study of patterns of growth of thyroid carcinomas is of considerable interest and importance. Vascular invasion is common, occurring in 15 per cent of papillary carcinomas, 55 per cent of follicular carcinomas, and in 48 per cent of anaplastic carcinomas. Approximately the same percentage of patients with papillary and anaplastic carcinomas eventually had distant metastases. However, less than half of this per-

centage of patients with follicular carcinoma eventually developed metastases to distant sites. Invasion of lymphatic channels adjacent to the primary neoplasm was found in 28 per cent of papillary carcinomas, in 11 per cent of follicular carcinomas and in 8 eight per cent of anaplastic carcinomas.

In our study, 30 per cent of the patients with papillary carcinoma had involvement of both thyroid lobes, resulting from invasion from the site of origin to the opposite lobe through lymphatic channels. Since not all patients in this study had been subjected to bilateral lobectomy, a higher incidence of bilateral involvement would be expected if both lobes were examined. Indeed, Clark et al.(6) have observed an incidence of 88 per cent of bilateral involvement in papillary carcinoma. Of the follicular carcinomas in our study, 21 per cent involved both lobes; all of these were of the invasive type. Localized follicular carcinoma by definition was a unilateral disease. Of the anaplastic carcinomas, 60 per cent were bilateral. Unlike papillary carcinomas, follicular and anaplastic carcinomas invaded the opposite lobe by direct and massive extension rather than by lymphatic permeation. The high incidence of bilateral involvement in thyroid carcinoma would seem a clear indication for total thyroidectomy.

Eventually growth of the neoplasm within the thyroid gland was followed by invasion beyond the thyroid capsule. This occurred in 31 per cent of the papillary carcinomas, 21 per cent of the follicular carcinomas and 92 per cent of the anaplastic carcinomas. Extraglandular invasion in thyroid carcinomas may occur at any age, but is relatively more common in the older age groups. However, this cannot be accounted for by longer duration of the disease in older individuals, since there seems to be no significant difference in duration of disease with or without extraglandular invasion at the time of the first operation.

Metastases in regional lymph nodes are extremely common in thyroid carcinoma. A summary of the incidence of early and late regional lymph node metastases in patients from the University of California Hospital is shown in Table III. An incidence of lymph node metastases in papillary carcinoma was observed in 47 per cent of patients at the Mayo Clinic(7). A much higher incidence of lymph node metastases in papillary carcinoma (84 per cent) was observed when the lymph nodes were examined routinely(8).

TABLE III
METASTASES IN REGIONAL LYMPH NODES

	Early	Late	Total
Papillary	44%	14%	58%
Follicular	25%	10%	35%
Anaplastic	52%	16%	68%

In comparing the incidence of early regional lymph node metastases in each of the three subgroups of follicular carcinoma, the incidence of lymph node metastases in the follicular variant of papillary carcinoma is identical with that observed in papillary carcinoma. Metastases to regional lymph nodes occurred in only one case of localized follicular carcinoma.

Of our patients with papillary carcinoma, 34 per cent had metastases in the ipsilateral cervical lymph nodes, whereas in 11 per cent contralateral cervical lymph nodes were involved. Approximately half of these latter patients had bilateral involvement of the thyroid gland. In eight per cent of patients with papillary carcinoma, metastases were bilateral.

A study of the location of lymph node metastases shows that these were found most commonly in nodes closest to the thyroid gland. When the nodes immediately adjacent are clinically involved, microscopic involvement of more distant nodes then as a rule is demonstrable. A similar location of involved cervical lymph nodes was described by Frazell and Foote(9). Lymph node involvement in papillary carcinoma occurs at all ages, although a higher proportion of patients in the younger age groups displays such lymph node involvement. In follicular carcinoma, metastases in regional lymph nodes are uncommon but occur at all ages.

Local recurrence of thyroid carcinoma following operation was found in 12 per cent of patients with papillary carcinoma, in 20 per cent of patients with follicular carcinoma and in 40 per cent of those with anaplastic carcinoma. Of the patients with papillary and follicular carcinoma with local recurrence, 50 and 55 per cent respectively are dead of the disease. Of the patients with locally recurrent anaplastic carcinoma, 80 per cent have died of thyroid carcinoma. In all instances these deaths resulted from local respiratory obstruction with or without local hemorrhage. Of the cases of papillary and follicular carcinoma, some patients had less than bilateral or total thyroidectomy. More radical removal of the thyroid gland should prevent

such local recurrence which has a high mortality.

Distant metastases in thyroid carcinoma rarely occur before the age of 40 to 50 years. This is in contrast to regional lymph node metastases which occur in a higher proportion of younger individuals.

Comparison of the incidence of distant metastases from thyroid carcinoma in patients with and without demonstrable lymph node metastases shows no significant differences between the two groups. This finding may suggest that distant metastases do not originate from regional lymph node metastases, but probably originate from the primary neoplasm in the thyroid gland. However, it should be noted that patients with demonstrable lymph node metastases had had these involved lymph nodes removed surgically, thus accounting for the lack of significant difference in the incidence of distant metastases in the two groups of patients.

Cumulative survival rates calculated by the methods of Berkson and Gage(10) and Merrell and Shulman(11) showed no significant differences in survival of patients with papillary and follicular carcinoma at 10 and 20 years after onset. Both types of carcinoma showed higher survival rates as compared to that of patients with anaplastic carcinoma. Similar differences in survival rates were also found after the time of operation. Comparison of cumulative survival rates of the three subgroups of follicular carcinoma showed no significant differences between the follicular variant of papillary carcinoma and localized follicular carcinoma at 10 and 20 years after onset. However, the survival rates of patients with these two forms of follicular carcinoma were significantly higher than those with invasive follicular carcinoma at 10 and 20 years. Similar differences in survival rates were found between these three subgroups of follicular carcinoma, when calculated from the time of operation.

Despite the belief that thyroid carcinoma is rarely fatal, this study has shown that 65 of the 293 patients (22 per cent) have died of thyroid carcinoma (papillary, 24, follicular, 20, and anaplastic, 21). In 29 per cent of these patients, death resulted from respiratory obstruction. The majority of deaths from all forms of thyroid carcinoma occurred after the age of 40, only six patients died before age 40. Although the incidence of papillary carcinoma is higher in the younger age groups, only five patients with papillary carcinoma have died before the age of 50. Significantly more males than females died of papillary carcinoma. There was no significant difference in the number of deaths in males and females from follicular and anaplastic carcinoma.

Although eventually fatal, thyroid carcinoma is compatible with long periods of survival, even in the presence of distant metastases. One patient with papillary carcinoma in this study survived over 35 years from the onset of the disease, and two patients with follicular carcinoma survived between 40 and 50 years from onset. The majority of patients with anaplastic carcinoma showed considerably shorter survival, although a few with small cell anaplastic carcinomas have shown survival over 15 years after onset.

Based on this study of the natural history of thyroid carcinoma, some proposals for the surgical therapy of the disease may be made. Because of the high incidence of involvement of both thyroid lobes in thyroid carcinoma, and because of frequency (29 per cent) of death from local respiratory obstruction, it would appear that total thyroidectomy should be performed. Exceptions to this rule would include: 1) giant-cell anaplastic carcinoma, which does not appear curable by any form of therapy, and 2) localized follicular carcinoma, which in our study has not been observed to spread to the opposite lobe. Such localized follicular carcinomas may be adequately treated by total lobectomy and resection of the isthmus.

Because of the high incidence of metastases to regional lymph nodes in this and other studies, radical removal of ipsilateral cervical lymph nodes should be carried out. Our studies have shown frequent invasion of blood vessels and lymphatic channels between involved cervical lymph nodes, and it seems obvious that such tissue would not be removed by simple, local removal of cervical lymph nodes.

The results of this study further suggest the advisability of more radical therapy in males, particularly those with papillary carcinoma, and in all patients over the age of 40, when thyroid carcinoma appears to act in a more aggressive fashion.

Significant statistical evaluation of various forms of therapy cannot be made on this or other similar studies of patients with thyroid

carcinoma. Comparison of survival of patients treated by various forms of therapy including various forms of surgical therapy should include comparisons of: 1) histologic types of carcinoma, 2) sex of patients, 3) various age groups, 4) stages of disease, including localized disease, regional and distant metastases, 5) type of operation, including local excision, total thyroidectomy, radical neck dissection, and 6) a followup of well over 20 years following surgery.

An attempt at such a statistical evaluation of various forms of therapy in thyroid carcinoma is now being made at the University of California Hospitals(2). The study is based on 1,211 cases collected by the California Tumor Registry. One conclusion made so far appears significant. Patients with thyroid carcinoma treated by surgery or radiation or both show significantly higher survival rates than do patients with thyroid carcinoma who have not been treated. This finding should offer encouragement to thyroid surgeons, since the prolonged course of many patients with thyroid carcinoma has provoked many questions regarding therapy in this disease.

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El Tratamiento Actual de la Hipertension

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Me pareció bien comenzar La discusión con un repaso de los antecedentes en el tratamiento de la hipertension antes de entrar de lleno en la discusioñ de las drogas específicas porque gran parte de lo que hoy estamos haciendo y definitivamente mucho de lo que se hacía en el pasado varía de un dia para otro y las drogas van y vienen pero la hipertensión permanece. Al menos esa es mi filosofia: la hipertensión como la úlcera péptica o la colitis y otra enfermedades cronicas a las cuales todos estamos predispuestos continuara existiendo como un problema clínico. Por lo tanto, con la venia de ustedes, voy a repasar el fondo filosófico de la etiología y la patogénesis de esta enfermedad, relacionándola estrictamente con casos clínicos y a la par desligañdola hasta donde fuera posible del campo experimental en el laborstorio.

Permítanme sugerirles un modo de clasificar la hipertensión arterial desde el punto de vista de etiología. Como ustedes saben tenemos la hipertensión primaria o esencial, la hipertensioñ renal o nefrítica, la adrenal y la neurogénica, la coarcatación de la aorta y la de toxemias gestativas. Quizás existan otras formas más raras pero siempre que vemos un enfermo con la presión elevada debemos revisar ligeramente en nuestras mentes todas estas posibilidades. Algunos casos se despachan luego: por ejemplo, la coarctación de la aorta. La hipertension de toxemia gestativa no hay que considerarla nada más que an la mitad de la población y solo cuando hay embarazo.

La hipertensión primaria o esencial incluye todos aquellos casos que no caben dentro de uno de los otros grupos; es un grupo que abaraca todos los casos que no podemos diagnosticar después de eliminar las otras causas. Vamos pues a hablar digeramente de esas otras causas. Cada día nos vamos impresionando más y más con la frecuencia de padecimientos nefríticos como antecedentes o concomitantes en los casos de hipertensión. Generalmente el padecimiento renal es bilateral y se manifiesta en la forma de pielonefritis, enfermedad muy común si se hace todo el esfuerzo posible por diagnosticarla haciendo si fuera menester hasta una biopsia del riñon. Desgraciadamente en la myoría de los casos la enfermedad es bilateral. Digo desgraciadamente porque hasta hace poco (y esto tambien puede cambiar) nosotros creíamos que podíamos aliviar al enfermo con hipertensión renal unilateral mediante la nefrectomía.

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Ustedes quizás noten en mi un aire de escepticismo en cuanto a la sabisduria de someter estos enfermos a la cirugía. Más adelante volveré al asunto.

En la hipertensión adrenal tenemos por supuesto los feocromocitomas. Estos tumores no son difíciles de diagnosticar si pensamos en la posibilidad de su existencia y sobretodo si pos tomamos el trabajo de analizar una o dos muestras de orinas de 24 horas para la excreción de las catecolaminas. El aldosteronismo primario se diagnosticaba sin dificultad antes de que se usaran los diuréticos en el tratamiento de la hipertensión: solo bastaba hacer una dosificación serológica del potasio. Ahora hay que recurrir a técnicas más dificiles. Podriamos, de todos modos, suspender los diuréticos y repetir la dosificación del potasio pero hay casos en que el potasio serológico no vuelve a su nivel previo antes de que transcurran varias semanas. El síndrome de Cushing se ha hecho muy familiar desde que los médicos hemos estado usando las drogas esteroideas. La frase "sindrome adrenogenital" no se refiere a los niños- yo no se nada de endorcrinologia pediátrica- sino a una condición que se caracteriza por el virilismo con hiperplasia difusa de las adrenales y con hipertensión. El diagnóstico de este sindrome tambien es fácil siempre que se piense en la posibilidad de su existencia. Existen otras formas de hipertensión neurogénica como las causadas por el mecanismo de Cushing (el mismo Cushing pero otra enfermedad) es decir, por el aumento de la tensión intracranial como en el caso de un tumor intraranial. De vez en cuando vemos hipertensión en la poliomielitis en casos de tabes u otras mielopatías raquideas y en algunos casos de polineuritis. En estas últimas condiciones el dolor intenso explica muchas veces la existencia de la hipertensión que viene siendo mas bien psicaoneurogénica que neurogéncia. La hipertensión de la coractación de aorta es del conocimiento de ustedes y no nos detendremos en la discusión de las toxemias del embarazo aunque estos casos no dejan de ser sumamente interesantes.

El siguiente paso en nuestra discusión es la exploracion de las diferentes posibilidades del diagnóstico después de haber revisado ligeramente en nuestra mente todas las condiciones anteriormente mencionadas. Qué pasos tomaremos para precisar más en nuestro diagnóstico? Hay ciertos estudios rutinarios que se deben hacer y luego hay ciertas investigaciones que se pueden hacer si el caso lo amerita. En primer lugar la presión se debe medir en ambos brazos y si se sospecha la coarctación de la aorta también la presion se debe medir en ambas piernas. Además hay que recalcar la importancia de tomar la tensión con el paciento de pies, sentado y acostado. Si la presión baja cuando el paciente se pone de pies hay que echar a un lado la hipertensión esencial o primaria porque en esta condicion la presión sistólica y la diastólica generalmente suben. De manera que el enfermo en que se note un descenso de la presión diastólica al ponerse de pie probablemente padece de hipertensión que no es primaria. Cuando la tensión en las extremidades inferiores es baja relativa a la que se encuentra en las extremidades superiores la probabilidad de coarctación de la aorta aumenta. Las dosificaciones sanguíneas de rutina y en particular los niveles de sodio, potasio, y el nitrógeno ureico son muy importantes al hacer un prognóstico del caso tanto en la presión esencial como en las demás clases de hipertensión. Actualmente tambien nos interesa mucho hacer un estudio básico del nivel de colesterol en la snagre de estos enfermos. En la discusión de mañana entraré más en detalle en el porqué de estos estudios. Por supuesto que siempro se hace análisis de orina completo incluyendo albúmina, glucosa etc., pero nostors creemos que la prueba clínica de mas significado en estos casos es la excreción de fenolsufonptaleina en la orina, aún en aquellos casos que el nivel de la urea en la sangre es normal. Creemos que esta prueba se debe hacer con sumo cuidado. En primer lugar el enfermo debe estar bien hidratado antes de inyectarle el tinte. Toda la orina que se elimine al cabo de los primeros quince minutos de despues de la inyeccion se recoge en un frasco. Asegúrense de que el enfermo recoge toda la orina que elimine en quince minutos exactos, ni más ni menos. Esto no quiere decir cue el enfermo debe o pude orinar antes de que se le inyecte el tinte. Quiere decir que al cabo de quince minutos después de la inyeccion el enfermo debe orinar hasta vaciar la vejiga por completo. Muchos enfermos creen que todo lo que usted desea es una muestra de orina. La muestra de los primeros quince minutos debe contener por lo menos el 25% de la cantidad de tinte que se le inyectó. Si los rínones eliminan menos del 15% del tinte en los primeros quince minutos usted encontrará que ese enfermo tam-

bien tiene probablemente el nitrógeno ureico en el límite o sobre el límite de lo normal: ambos son malos signos prognósticos. Ahora, terminamos la prueba de fenolsulfonptaleina recogiendo la muestra de la media hora, la hora y las dos horas. El valor de las últimas muestras no es más que para comprobar que la prueba se hizo debidamente porque la mayor parte del tinte se eliminara en los primeros quince minutos. Si el laboratorio le informa a usted que el paciente eliminó el 10% en los primeros quince minutos y el 35% en los quince minutos subsiguientes usted sabe que hubo algun equívoco, las muestras se confundieron o el paciente no vació al vejiga al cabos de los quince minutos y ademas usted puede deducir que si el 50% del tinte se eliminó en los primeros 30 minutos la condición renal no es ton mala como la primera muestra indicaba. Yo siempre trato de explicarle al enfermo el procedimiento de esta prueba porque cuando se hace bien y se puede hacer muy fácilmente en la oficina) esta prueba es muy valiosa para evaluar la condición renal del paciente.

Los pielogramas excretorios también son sumamente valiosos en el estudio básico del hipertenso. El doctor Meilman opina que la primera radiografía debe tomarse al cabo de tres minutos despues de la inyección del tinte, cualesquiera que fuera este, porque cuando hay un rinón deficiente la materia radiopaca no se eliminará por ese rinón durante los primeros tres minutos. Para empeorar la situación a menudo se ve que si se espera cinco o seis minutos para tomar la primera placa el rinón enfermo a menudo parece haber concentrado más la substancia que el rinón bueno. De manera que si al cabo de tres minutos el tinte aün no se ve en uno de los riñones podemos concluir que probablemente ese rinón carece de buena circulacion auñ cuando más tarde ese mismo rinón parece haber concentrado el tinte mejor que el otro. Como ustedes saben cuando hay una obstrucción a la circulación en un rinón ese rinón puede concentrar a orina a un nivel bastane alto: esa es la base de la prueba de Howard. Para asegurarnos de que no hay deficiencia cardiaca debemos hacer radiografia y fluoroscopia del pecho y además una electrocardiografia.

Tambien podríamos clasificar la hipertensión desde el punto de vista del prognóstico porque después de todo si usted conoce bien el caso usted puede muchas veces predecir lo que la hipertension va a causar y que curso va a seguir dentro de un periodo determinado basando su conclusión en lo que usted ha observado en el transcurso del la enfermadad. Un paciente que lo ha pasado mas o menos sin novedad por espacio de digamos cinco años probablemente pasara el proximo año tambien sin novedad, a menos que occura un accidente cerebrovascular o coronariano, o a menos que la hipertensión entre en una etapa acelerada o maligna.

La mayoría de los casos se han clasificado como "benignos", pero ahora nosotros preferimos no llamarlos benignos porque después de todo estos casos cuando no se tratan debidamente acortan la expectativa de vida por hasta unos veinte años, de 72 a 52. El curso de la enfermadad es generalmente largo, de 20 anos ó mas, a menos que la enfermedad entre en la etapa maligna que en parte se debe a la retención de la sal y del agua. A menudo nosotros consideramos que la etapa maligna puede ser iniciada por uno de dos mecanismos o por los dos en combinación: primero una insuficiencia cardiaca subclínica y algun trauma emocional severo.

Otra manera de clasificar los hipertensos es a base de lo que vemos en los repetidos examenes que les hacemos. Podemos tener un hipertenso completamente libre de complicaciones: digamos una mujer de unos 34 años de edad, un tanto obesa, con una tensión arterial de unos 190 sobre 110, con examen fundoscópico totalmente negativo. A menudo en un caso así encontraremos historia de hipertensión o de sus complicaciones en la familia, pero lo mas probable es que si el caso es de suficiente duración encontremos complicaciones bien sea en los ojos, el corazón, la aorta y sus ramificaciones principales, el cerebro o en los riñones. Estas son las areas vulnerables y los ojos reflejan la situación del cerebro. Por lo tanto haga usted un examen cuidadoso del fondo ocular, del corazoñ, incluyendo una electrocardiografia y de los riñones. La condición renal es muy importante sobretodo para fines del prognóstico porque un enfermo que tiene manifestacion es de insufuciencia renal con retención del nitrogeno tiene un prognóstico grave a pesar de lo que usted le haga. Pero aun esos casos deben someterse al tratamiento enérgico como las voy a comprobar más adelante.

Ahora vamos a repasar lo que sabemos de esta enfermedad a base da estos factores. Sabemos definitivamente que los riñones son de suma

importancia y sin duda la causa primaria en algunos casos de hipertensión, pero es muy dudoso que los riñones sean le causa primaria en la mayoria de los casos. Cuando estamos seguros de que la hipertensión es primaria o esencial no la llamanos nefrítica pero tenemos que llamarla nefrítica hasta que descubramos que es renal. Ultimamente hemos tenido que rectificar en muchísmimos casos un diagnóstico establecido y cambiarlo de esencial a nefrítico. Por mi parte usted no puede diferenciar en muchos casos entre el diagnóstico de esencial y el nefrítico sin hacer los estudios de laboratorio antes mencionados. Sin embargo es muy dudoso que la mayoria de los enfermos con hipertensión esencial tengan patología renal primaria porque el doctor Smithwick y otros cirujanos hicieron miles de biopsias del rinón mientras hacian simpatectomías en estos enfermos y el tejido renal estaba normal o ligeramente afectado en la mayoria de ellos excepto en los casos mas avanzados. De manera que a mi se me hace muy dificil creer que la patología renal inicia la hipertension en la mayoria de los hipertensos.

Muchos médicos siempre opinan que alguna deficiencia renal es el elemento causante; por ejemplo una reacion neurogénica a un esfuerzo o como opina el doctor Smithwick, una hiperreacción a la posición vertical como les habia yo señalado anteriormente. No sabemos con certeza si la reacción es emocional, posicional o una combinacion de estos factores de esfurrzo pero parece que los vasos del riñón se contraen en una forma excesiva como reacción neurogénica en los enfermos hipertensos. La vasoconstricción trae como consecuencia una disminucion en el flujo de sangral riñón y un aumento en la fracion de filtración. Con el tiempo se produce un cambio estructural en el riñón que los patólogos denominan nefroesclerosis y que ocurre principalmente en las arteriolas y las arterias más pequeñas. No me refiero a la arteriolitis necrotizante de caracter inflamatorio que a menudo vemos en la hipertension maligna. Me refiero al cambio estructural visible en forma de engruesamiento de las arterias pequeñas y las arteriolas que va acompañado de una disminucion en el flujo de sangre al rinón y un aumento en la fracción de filtración de ese órgano.

En cuanto a los factores neurogénicos o psicogénicos es mi opinión que el hipertenso familial típico es un individuo ansioso que reacciona en forma más violenta a las situaciones. Ustedes recordaran la señora Grummage en David Copperfield. Esas personas sencillamente reaccionan con más violencia. Yo no creo que sientan más los estímulos aunque ellos así lo afirmen: por ejemplo, ellos dicen que el agua helada que se usa en la prueba del frío es insoportable y puede que así sea porque ellos reaccionan con una elevación exagerada de la tensión arterial. Sin embargo si usted pone a esos individuos a descansar en cama generalmente en el término de una semana la presión bajará muchas veces hasta un nivel normal. En mi opinión estos individuos son decididamente hipertensos aunque algunos clínicos opinen que no. Yo baso mi opinión en el hecho de que en estas personas frecuentemente encontraremos los demás signos y síntomas de hipertensión como la hipertrofia del corazón, los cambios oculares y la disminución en el flujo de sangre renal a que me referí anteriormente. Aún así cuando estas personas guardan cama la presión baja a niveles a menudo normales; y si usted refuerza el descanso en cama con calmantes como el amital sódico muchas veces estos enfermos mejoran en forma aguda de un dia para otro. Esta observación es importante desde el punto de vista del tratamiento porque estos enfermos sencillamente son los más fáciles de tratar y con menos riesgo. Pero si la presión no responde bien al descanso y al uso de calmantes el prognóstico en cuanto al uso de drogas es más dudoso aunque no irremisible. Yo me siento muy contento cuando veo la gráfica de la prueba del descanso y los calmantes y observo que la presión ha bajado digamos a unos 130 sobre 90 u 80 durante la noche. Como ustedes saben los rusos, que adoran a su Pavlov, están empenados en probar que la hipertensión esencial no es mas que un reflejo acondicionado. Los experimentos que se han hecho en ese sentido son por demás interestantes pero no tengo el tiempo para discutirlos en mas detalla aquí.

Es cierto que muchos hipertensos mejoran aun con la psicoterapia superfical que yo puedo brindarles. Una de las ventajas de las drogas como la reserpina es que facilita mucho la psicoterapia y sobretodo economiza el tiempo y el esfuerzo emocional del médico. Hay muchos psiquiatras que saben darle al enfermo ese sentido de seguridad tan esencial en el tratamiento de la hipertension y cuando lo hacen la presión inmediatamente baja. A veces yo le digo a mi senora que

mi psicoterapia consiste en vaciar mis reservas de seguridad emocional sobre el enfermo y cuando terminamos el enfermo se siente mucho mejor pero yo me siento peor que el enfermo cuando empezamos. Como quiera que fuera la psicoterapia ayuda mucho en el tratamiento de este mal tan común: no tien que ser una psicoterapia minuciosa o experta, basta con la psicoterapia que usted y yo, los legos en ese campo, podremos brindarle al enfermo. Lo que más necesita el enfermo es apoyo emocional y es nuestro deber dárselo. A mi además me gusta darles las drogas tranquilizantes en dosis moderadas.

Volvamos al asunto del factor familiar en la hipertensión esencial. Se han hecho muchos estudios, aunque citaré unos pocos, para comprobar la teoria de que la hipertensión de este tipo es de carácter familial. No hay duda de que esta enfermedad se manifiesta con más frecuencias en personas de la misma familia. Puede que no sea el mismo rasgo que se refleja en la arterioesclerosis. Claro que el prognóstico es mucho más dudoso en el enfermo que tiene ambos rasgos. Como la diabetis esta enfermedad se desarrolla a una edad relativamente avanzada pero si usted se toma el trabajo de indagar cuidadosamente encontrará historia de hipertensión en la familia de la mayoria de esos enfermos. El doctor Longscope en la Universidad de Johns Hopkins decia: "Nunca diga usted 'nunca' ni 'siempre' en medicina porque tan pronto como haga la afirmacion habrá quien diga: 'Pues yo tuve un caso . . .' "

Los estudios de Ayman en niños tienden a confirmar la teoria de que la hipertension es una enfermedad hereditaria. El doctor Ayman estudió aredeodor de 780 ninos cuyos padres y abuelos él conocia bien. En este grupo habia gemelos uni- y bivitelinos, y hasta hermanos ternos. Yo no quiero entrar en los detalles de este estudio pero basta decir que de 32 niños cuyos padres tenían presión, arterial normal solo uno registraba una presion que alcanzaba el límite mayor de la presión para su edad. Si eso no basta el siguiente grupo nos convencerá. De 55 ninos cuyos padres tenian presion arterial decididamente alta, 25 tenían presiones de más de 150 sobre 90. (y ninguno de esos niños tenia más de 12 anos de edad). Naturalmente el doctor Ayman concluye que la hipertension es hereditaria. Yo he tratado de evadir el uso deltérmino 'hereditario' y prefiero el termino 'familial'. El nino nace a la familia y en la familia, de manera que su personalidad refleja los rasgos puramente hereditariost los adquiridos. Sin embargo, a mi me parece que el doctor Ayman cree que la hipertensión esencial es un rasgo mendeliano.

Platt en Inglaterra atacó el problema en forma diferente. De los enfermos estudiados por este doctor seis de cada siete tenían hipertensión primaria y todos fueron escogidos en la certeza de que cada uno de ells tenía antecedentes hereditarios de hipertensión. De los enfermos que no tenían historia de hipertensión en la familia tres de cada cuatro tenían otra enfermedad. Vamos a revisar los resultados de este estudiante en enfermos hipertensos y con patología renal unilateral. De primera intención la mayoria de nosotros caeríamos en el error de asumir que si un enfermo tiene enfermedad renal unilateral con hipertensión, la hipertensión se debe a la enfermedad unilateral. El doctor Platt sin embargo demostro que, al menos a base del tratamiento, no podemos derivar tal conclusion. De 23 enfermos con antecedentes familiares y con enfermedad renal unilateral solo once, o sea menos de un 10%, de los pacientes estudiados mejoraron con la nefrectomía; mientras que de los que no tenian antecedentes hereditarios 8 de cada 12 mejoraron despues de la nefrectomia. De manera que, es sumamaente importante que usted investigue los antecedentes familiares de cana uno de estos enfermos. Pregunte si alguien más en la familia sufre la enfermedad, si su madre tuvo alguna complicación de embarazo, si su padre tuvo algun accidente cerebrovascular, si sus abuelos viven a que edad murieron. Si sus cuatro abuelos murieron digamos a la edad de 85 años y si sus padres todavía viven, el factor de la herencia aún cuando tuviera una tendecia a la hipertensión no es muy importante porqué la historia de la familia en general esta contra una hipertensión muy severa.

Vamos ahora a enfocar nuestra discusión en el tratamiento de la enfermedad. Tendremos nosotros una buena razón para sentirnos satisfechos cuando vemos a presión de un enfermo bajar mientras está tomando ciertas drogas? Ya hemos concluído que la hipertensión esencial es una enfermedad hereditaria que posiblemente obedezca a las leyes de herencia de Mendel. La doctora Caroline Thomas hizo algunas observaciones muy interesantes entre sus estudian-

tes en John Hopkins. Escogio un grupo de estudiantes de antecedentes familiares de hipertensión. Cuando esos esudiantes se sometían a cualquier esfuerzo emocional, como presentarse a examen, manifestaban signos de hiperreacción del sistema cardiovascular con elevación de la presión y el pulso. Hay individuos que reaccionan con exceso por medio de otros sistemas como los que al someterse al esfuerzo emocional desarrollan diarrea o vómitos. Esta reacción excesiva puede ser mediante el sistema nervioso central o el autónomo, mediante los rinones o las glándulas endocrinas. Posiblemente durante el esfuerzo las endocrinas vacían una cantidad excesia de substancias corticoideas en personas con tendencia a la hipertensión. Tarde o temprano la enfermedad vascular se establece en forma inequívoca y cuando se establece generalmente esa enfermedad es de carácter secundario y no primario. Comoquiera que sea cuando el mal se arragia el enfermo entra en un circulo vicioso de empeoramiento y perpetuación sobretodo cuando el rinon está afectado. Esto se ha comprobado en forma definitiva en los animales.

Bajo la influencia de estos diferentes mecanismos el nivel basico para la proteccion homeostática de la presión gradualmente va subiendo. Una persona normal protege su presion alrededor de unos 120 sobre 80. Los hipertensos alcanzan un nivel básico más alto y siempre reaccionan con tanta violencia como los individuos normales para reponer la presión a su nivel básico cuando por alguna circunstancia la presión baja. Tal parece que estas personas tienen como si dijeramos su "baroestato" ajustado a un nivel más alto. Al menos esta es una hipótesis interesante y hay mucha evidencia en su favor.

La hipertensión, fuere cual fuere su causa, se mantiene reversible o fisiológica mientras no se establezcan las lesiones vasculares permanentes, sobretodo en los rinones. "Reversible" sencillamente significa la condición de la presion de poder volver a un nivel más bajo o aceptable en términos clínincos sin que el paciente sufra malestares como mareos, debilidad u otras senas de isquemia en algun órgano.

Volvamos a las drogas que tenemos a nuestra disposición para combatir la hipertensión. En términos generales contamos con las siguientes categorías: los derivados de la Rauwolfia serpentina, los derivados del Veratrum viridis, que todavia tienen sus indicaciones sobretodo en personas mayores, el grupo de los clorotiazidos neutralizantes ganglionares que ya no son realmente bloqueadores de ganglios sino de las reacciones adrenérgicas. Este último grupo de drogas, los "bloqueadores" adrenérgicos, ofrecen muchas ventajas sobre sus antecesores porque no producen estrenimiento, atonia de la vejiga urinaria o malestar ocular por la razon de que no interfieren con los impulsos colinérgicos. Más adelante volveremos a hablar de este grupo.

Ahora bien: Cómo escogeremos los casos para fines de tratamiento? La respuesta es: los casos no se escogen. Como médico naturalmente usted está obligado moralmente a brindarle alguna forma de tratamiento a cualquier enfermo que se lo solicite. Claro que cada uno de nostros debe de tener en su mente una idea de la respuesta que se puede esperar al tratamiento en un caso dado, para nuestra propia satisfaccion y para la satisfaccion de la familia del enfermo. A veces los médicos nos olvidamos de que uno de nuestros deberes principales es definir hasta donde se pueda el prognóstico de cada caso. El enfermo y sus familiares lo exigen y usted, si lo sabe, debe decírselos. Claro que el prognóstico que usted pueda hacer depende de su jucicio clínico y este depende en gran manera de su experiencia. Ya hemos dicho que el enfermo que no tiene antecedentes familiares de hipertensión tiene un buen prognóstico sobretodo cuando la enfermedad aün no se ha fijado con cambios organico-patológicos en el rinon, el corazón o el cerebro. El enfermo que tiene cambios orgánicos en el rinon tiene un mal prognóstico no importa lo que usted haga. Puede que usted logre bajar la presión en estos individuos pero muchas veces tan pronto usted les baja la presión la uremia empeora porque parece que ellos necesitan una presión elevada para filtrar la orina por el rinon obstruido. De modo que queda usted frustrado en su empeno- y no hay nada más desagradable para un médico que quedar en un rincón sin salida. Las complicaciones cardiacas tambien son serias aunque no tanto como las complicaiones renales. Hay enfermos con corazones enormes y hasta con insuficiencia coronaria que responden bastante bien al tratamiento cuando la presión les baja y sobretodo cuando usted consigue detener el puso a la vez. En el campo de las complicaciones cerebrovasculares ya la situacion no es tan seria como en los otros dos. Aunque la patologia cerebrovascular en sí no es un a sena de mal prognóstico nosotros tenemos la con-

fianza de que cuando la presión baja los síntomas neuropatológicos van a mejorar mucho.

Todavia nos subscribimos a la creencia que un caso que manifiesta sintomas neuropatológicos es un caso urgente pero tambien estamos convencidísimos de que la urgencia no es tanta como en el caso de patología renal con uremia. La retinopatía por lo general se observa en casos de patología renal y cerebrovascular y en un tiempo creíamos que el enfermo en quien se observaba la papiledema, por ejemplo, era un caso casi perdido. Pero ya nuestro concepto ha cambiado en ese sentido. Todos sabemos de muchos, pero muchos casos que han vivido por más de cinco anos despues de descubrirseles la papiledema. La papiledema en sí es una mala sena y suando existe hay que tratar inmediatamente, pero cuando hay papiledema sin insuficiencia cardioca o renal y cuando no se observa nada de importancia en el sistema nervioso central la situacion no es tan alarmante hoy dia. Sabemos que las cosas van a deteriorar rapidamente si no se tratan pero usted las trata con vigor y con la esperanza de que van a mejorar.

Si el enfermo tiene mas de 50 años de edad hay dos formas de mirar el asunto. El enfermo ha llegado a los 50 años y probablemente la enfermedad esté bien establecida sobretodo si empezó cuando el paciente estaba en los treintas. No digo que la situación sea mala ni tampoco digo que es buena; pero si la presion es alta y el enfermo tiene mas de cincuenta años usted está más limitado en el tratamiento. El sistema vascular ye se he adaptado a la hipertensión y ya existe la enfermadad vascular orgánica y la reversibilidad del caso es menor. Ya usted no tiene que tratar con tanta urgencia pero debe hacerlo sin titubeos.

Los hombres por lo general no responden bien al tratamiento. Las mujeres, aunque tienen una incidencia de la enfermedad doble la de los hombres, responden mucho mejor y tienen mejor prognóstico. De manera que si usted esta tratando a un hombre, con historia familiar de hipertensión y sobretodo si es obeso, no anticipe buenos resutados en su empeño. El nivel de la presión diastólica es mucho mejor criterio que el nivel sistólico porque hay much gente de más de 50 años que tienen presiones sistólicas de más de 200 y diastólicas de 80 y 90 que casi nunca tienen complicaciones, tanto que en mi opinion los enfermos con presiones de esa naturaleza no son realmente hipertensos. Esto es mas bien arterioesclerosis con pulso de "marron hidráulico".

El prognóstico tampoco es bueno cuando la presion no cede con el descanso en cama, con o sin los calmantes. Si el enfermo tiene el pulso relativamente lento y sin fallo el prognostico no es tan favorable como el del enfermo que tiene el pulso acelerado aunque la presión alcance a unos 230 sobrel 120 y particularmente cuando el paciente es mujer. Por lo general yo consigo bajar la presión sobretodo cuando el pulso baja porque en estos casos la presion elevada no es mas que una sena de ansiedad y responden bien a los tranquilizantes juntos con algun agente vasodilatador. Las mujeres responden bien con cualquier tratamiento, después de todo son mujeres y, repito, las mujeras responden doblemente mejor que los hombres.

Vamos ahora a discutir como evaluar una drogo en cuanto a su efectividad en el tratamiento de la hipertensión. Esta pregunta es muy frecuente y muy difícil de contestar porque para evaluar debidamente cada una de estas drogas se necesita tiempo. La hipertensión es una enfermedad crónica. Se necesitan algunas semanas o meses de observacion para llegar a alguna conclusión más o menos justa. Lo primero que se debe hacer, a menos que sea una emergencia, es poner el enfermo bajo un placebo por espacio de 10 a 12 semanas. Luego se le da Rauwolfia por cinco o seis semanas y luego se controla eso con una dosis equitativa de fenobarbital como placebo. Después de eso substituya con reserpina.

Los derivados de la Rauwolfia no producen efectos rápidos. El pulso tiende a bajar con la Rauwolfia y subir con el fenobarbital. Esta evidencia se acumula muy lentamente y tienfe a indicar que la Rauwolfia es una droga de efecto hipotensivo pero muy benigno a menos que se administre por via parenteral. Quiero recalcar aqui que la reserpina administrada por la via parenteral es una droga muy potente en su efecto hipotensivo pero cuando se adminstra por la via oral es una droga de efecto lento, que produce bradicardia y congestión nasal y de efecto hipotensivo moderado. El enfermo puede acostumbrarse a tolerar la congestion nasal sobretodo en un clima como el de Arizona y con el uso de alguna droga de vasoconstriccion.

De vez en cuando algun enfermo se queja de pesadillas con el uso de la Rauwolfia. Ese efecto casi siempre se debe a un exceso de la droga. Otros enfermos se quejan de debilidad y sueño durante el dia. En estos casos lo mejor es suspender la droga por una semana y volver a empezar con la mitad de la dosis.

La mayoria de nuestros casos son complicados. Casi todos los casos han sido referidos por algún médico que no ha obtenido los resultados que él haya deseado. Por ejemplo, a menudo nos encontramos con un paciente hipertenso maligno con patología ocular de grado 4 a punto de un ataque convulsivo. En este caso es donde se indica la reserpina por la via intramuscular en una dosis de 2½ a 5 mgm. A la vez, si se necesita, se le da el enfermo alguna droga de efecto "bloqueador," comon hexametonium, en una dosis de 2½ a 5 mgm. por la via intravenosa. No olvide que el enfermo con encefalopatia es muy sensitivo al uso de estas drogas. Las drogas "bloqueadoras" ya no se usan tanto: preferimos el uso de la reserpina por via intramuscular y si el enfermo no puede tomar nada por via oral se le puede dar una dosis de clorotiazida por la via parenteral. Queremos bajar la presion sin périda de tiempo en el paciente con esta complicacion. Más tarde podemos administrar las drogas por la via oral y sostenerlos con la terapia oral crónica por un período indefinido.

Ahora quisiera entrar en la discusión de los agentes "bloqueadores" adrenérgicos. Las compañias Ciba y Burroughs Welcome tienen nuevas drogas de este tipo. La de Burroughs-Welcome se llama "Darenthin" y se usa en Inglaterra Aqui se esta usando hasta la fecha solo en el campo experimental. La droga de Ciba se llama "Ismelin" o guanetidina. Estes drogas son muy interesantes. Nosotros creemos que la Ismelina es de mas facil manejo, quizas porque la conocemos mejor. El margen de dosis es mas estrecho con la Ismelina que con la Darentina. En eso la darentina se parece a la hexametonio: puede variar 25 veces en un mismo enfermo. Por eso preferimos la ismelina pero la darentina tien de ventaja de que no irrita tanto el intestino. Ambas drogas son solamente simpatolíticas y por consiguiente ambas tienden a producir un exceso colinergico como la sialorrea. Ademas los enfermos se quejan do que la droga produce "diarrea," pero en la mayor parte de los casos todo lo que se produce es una evacuacion explosiva quizas una vez o a lo sumo dos veces diarias. Esto en si no es un problema y hasta cierto punto es una ventaja porque muchos de estos enfermos se fijan mucho en la condicion de sus intestinos y temen al estreñimiento. Por lo general los enfermos se adaptan a esa reacción con la Ismelina sin dificultad. En resumen, las drogas bloqueadoras son buenas y necesarias pero se deben usar solamente como un ultímo recurso porque tienen muchas desventajas, particularmente en su efecto de hipotensión postural. Sin embargo, cuando se trata de patologia renal avanzada las dos drogas son valiosísimas. Antes de descubrir estos dos medicamentos los urólogos hacían la nefrectomía cuando se consideraba que uno de los dos riñones era de poco uso al enfermo. Pero aun estos especialalistas solían decir: "No el extraiga usted un riñon al enfermo a menos que ese órgano sea totalmente inutil porque esa operación, desde el punto de vista de estadísticas, no beneficica mucho al paciente". Ademas la masa renal es a veces muy necesaria; de manera que la nefrectomia ya casi no se hace. En lugar de la nefrectomia se usa la ismelina hasta la fecha con resultados bastante satisfactorios.

Ahora respecto a los diureticos. En mi opinión no hay duda de que estas drogas, la clorotiazida, sus derivados y otras drogas de esa familia, nos han proporcionado una nueva y potente arma para combatir la hipertensión. Además de su efecto hipotensivo directo la clorotiazida y sus derivados refuerzan el efecto de otras drogas que se usan en el tratamiento de esta enfermedad. En particular el efecto reforzante es más pronunciado en el caso de de las "bloqueadoras." De modo que lo que nosotros hacemos en el tipo de casos a que me refería anteriormente es poner el enfermo primeramente con la clorotiazida y no con ismelina. Es cierto que por lo general no damos la clorotiazida sola, casi siempre la damos en combinación con otras drogas empezando primeramente con una de las más benignas como la reserpina. La reserpina es muy valiosa en aquellos casos con taquicardia por su efecto bradicárdico. Si la reserpina no trabaja entonces le damos apresolina u otra droga vasodilatadora de la circulación renal. Dicho sea de paso, las drogas nuevas se presentan cada día con rapidez asombrosa y cuando ya conoce uno alguna droga con sus puntos buenos y malos se presenta otra que muchas veces aventaja s su

antecesora. La apresolina por ejemplo, a pesar de ser una buena droga tiene, ente otras, la desventaja de producir dolor anginoso y taquicardia. Pero ya tenemos a nuestra disposición nuevas drogas sin las desventajas de la apreslina. Hasta la fecha lo mejor es preceder uso de la apresolina con la reserpina y el veratrum y al cabo de unas semanas dar la apresolina en dosis de 50 mgm. cuatro veces al dia y si aun con esta dosis se produce angina la suspendemos.

Muchas veces me preguntan si hacemos simpatectomías. El doctor Smithwick de nuestro hospital en 1948 estaba haciendo simpatectomías a razón de una diaria. Según se fueron descubriendo drogas hipotensivas nuevas el número de simpatectomías ha ido dismínuyendo al punto en que en el año pasado apenas se hicieron 10 y estas en el transcurso de algún procedimiento exploratorio en casos de hipertension severos en los que se sospechaba la existencia de algún tumor adrenal, patologia renal avanzada o alguna anomalía circulatoria del riñon. Cuando el doctor Smithwick, que es un experto en ese campo, no encontraba alguna causa orgánica optaba por hacer una esplanicectomía limitada ya que tenía el campo expuesto. La esplanicectomía limitada no hace daño y a menudo produce una baja permanente de la presión arterial. A veces los resultados son brillantes pero por lo general los resultados no son del todo satisfactorios. Yo no la recomiendo. Sin embargo, un fracaso en el en una esplanicectomia se puede fácilmente convertir en un exito rotundo mediante el uso de la clorotiazida en dosis pequeñas, digamos de unos 250 mgm. diarios. Algunos enfermos responden bien hasta con unos 62½ mgms. de la droga.

Con esta información básica vamos a hablar un poco sobre el modo de acción de estas drogas. No hay que engañarse: no tenemos drogas específicas cuando se trata de las drogas hipotensivas con la posible excepcion de la clorotiazida. Esta droga no baja la presión en personas con presión normal. Hasta donde yo sé esta es la unica medicina que tiene esa propiedad. Todas las demás bajan la presión en los normotensos como en los hipertensos; Cual es pués el mecanismo de acción de la clorotiazida? Mucha gente creía que esta droga trabajaba extrayendo la sal del cuerpo y reduciendo el volumen de sangre, pero esta teoria se ha comprobado que es un error. Ya casi todos estamos de acuerdo en que estas drogas surten otro efecto en los hipertensos y solo en los hipertensos. El mecanismo exacto se desconoce. La sal tiene algo que ver en el asunto pero no creemos que ese es el único mecanismo de acción de la droga.

Para tener éxito en el uso de las drogas hipotensivas me parece a mí que es indispensable que usted de veras crea que bajar la presión es de beneficio para el enfermo. Si usted no tiene esa filosofia básia me parece a mi que usted estara haciendo uso de las drogas innecesariamente. Sin embargo, yo creo que usted no puede usar estas drogas por mucho tiempo en un enfermo sin convencerse de que de veras lo está ayudando. El mismo enfermo muchas veces le clemará la atención a usted al hecho de que ya se siente mucho mejor. A mí me parece que lo que más los hace sentir mejor a ellos es que al bajar la presión el corazón trabaja menos y por consiguiente se sienten menos fatigados. Pero si a pesar de esto usted todavía no confia en las drogas no las use o úselas solamente con fines experimentales como para probar si de veras sirven para algo.

Una combinación de drogas es casi siempre más efectiva que una droga sola. Tenga flexibilidad en el uso de las medicinas. Si una droga o una combinacion de ellas no le da buen resultado cambiélas hasta que encuentre la droga o drogas que le surtan mejor efecto al caso particular.

Nunca piense que la hipertensión se cura. Bien sabemos que tan pronto como el paciente suspende sus medicinas la presión sube otra vez al nivel de antes de empezar el tratamiento y muchas veces hasta un nivel mas also. Cuando la presión sabe despues de un periodo de tratiemento siempre hay el raisgo de un posible acidente cerebrovascular, sobretodo cuando se han estado usando las drogas "bloqueadoras." De modo que siempre impresione en el enfermo la necesidad de tener las drogas a la mano dondequiera que estuvieren.

Una de las cosas que más me satisface en el tratamiento de esta enfermedad es el hecho de que una vez la presión ha bajado es mucho más facil mantenerla baja que rebajarla en un principio. La cantidad de la droga que se requiere diariamente disminuye en las mayoría de casos. Esto representa economía de dinero para el enfermo y a la vez les da ese efecto psicológico saludable que les causa el hecho de que no tienen que estar tomando tanta-

medicina como cuando empezaron a tratarse.

Otra cosa que hay que recordar es que el calor tiene un éfecto sinergístico con las drogas hipotensivas. Por eso durante el verano es bueno observarlos cuidadosamnete y reducir la dosis de acuerdo con la necesidad. Tambien es bueno advertirle al enfermo que se cuide de no pararse muy rapidamente en la tina cuando este tomando un baño caliente. Las drogas "bloqueadoras" son la más susceptibles en ese particular. Si el calor surte ese efecto reforzante el frio surte el efecto contario. De manera que en el otoño la dosis hay que aumentarla en muchos casos.

En el tratamiento con estas drogas hay que preseverar. Si usted va a desistir del uso de las medicinas en un plazo corto es mejor que ni siquiera comience a usarlas. Este es un problema que requiere tratamiento prolongado y es bueno hacerle saber esto al enfermo desde un principio.

Ahora bien; A quienes va usted a brindarles el tratamiento? La respeuesta a esa pregunta es que el tratamiento se le debe ofrecer a todo aquel enfermo que en su opinión va a tener malos resultados a consecuencia de su enfermedad si no se trata; y esto presupone que usted conoce bien al enfermo. Cada enfermo con hipertensión es distinto. Cuando me preguntan; cual es el tratamiento preferido par a uno enfermo que tiene una presion de 190 sobre 114? mi respuesta es: todo depende. Depende del sexo, de la edad, de la duracioñ de lá enfermedad, de la historia de la familia, de la condición de los riñones, del curso de la enfermedad y de otros factores. Yo no puedo hacer una recomendación a base de la presión nada más. Por ejemplo una ancianita con una presión de 210 sobre 80 no requiere tratamiento, en mi opinión.

Hay que individualizar cada caso y hay que tomar tiempo, bastante tiempo para estudiar y evaluar debidamente el curso de la enfermedad. Usted de dará cuenta de que el enfermo tiende a proseguir más o menos el mismo curso en su enfermedad que ha seguido hasta el momento en que usted empieza a tratarlo. Hay que tratarlo sintomáticamente y con psicoterapia para reducir las irritaciones a que ese enfermo se somete diariamente. Naturalmente que yo recomiendo el uso de las drogas hipotensivas. Cuando usted empiece el tratamiento use una droga de efecto benigno primero estando siempre pendiente de los efectos acumulativos de droga para rebajar la dosis a un nivel efectivo pero libre de los efectos secundarios indeseables de la medicina. Si después de todo la reserpina no la da el resultado que usted desea no la suspenda, reténgala y anada otra al plan. Las combinacione son siempre mejores. Cualesquiera que sea su plan terapeutico no pierda de vista un principio basico: digale al enfermo pero con conviccion "Nosotros vamos a bajarle la presión a usted."

En conclusion yo quisiera platicarles de un caso que ilustra claramente todos estos puntos. A esta señora le hemos hecho todas la pruebas diagnosticas y terapeuticas con que contamos hoy dia. Es una mujer relativamente joven. En su ultimo embarzo sufrio una toxemia pero la hipertension no se manifestó en forma permanente com hasta los 44 años de edad, más o menos cuando entro en la menopausa. La presión era excesivamente alta; de unos 260 sobre 160. Cuando niña habia sufrido una fractura en la nariz y desde entonces habia consumido cantidades enormes de drogas vasoconstrictoras. No creo que esas drogas tuvieran nada que ver con su hipertensión, sin embargo. La internamos en el hospital y yo empecé a tratarla. Le dimos todas las drogas a nuestra disposición y la sometimos a todas las pruebas a nuestro alcance. Investigamos la posibilidad de la existencia de aldoesteronismo primario y naturalmente de patologia renal, pero todo fué en vano. Yo estaba convencido de que no se trataba de un caso de hipertensión esencial. Nuestra sospecha era tal que la sometimos a una laparotomia exploratoria en las manos de un experto como el doctor Smithwick. Despues de la exploración el doctor Smithwick, nos aseguró que no habia encontrado patologia renal ni adrenal en forma alguna, pero que optó por hacer una esplacicectomía.

Después de la operación la enferma continuaba siendo tan dificil de tratar como antes. Todavia no respondia a las combinaciones corrientes en dosis bastante fuertes. En ese tiempo estábamos experimentando con las drogas "bloqueadoras" y la pusimos a ella con estas drogas. Mientras tanto la señora empezó a quejarse de dolor en las pierans mas o menos típico de claudicacion intermitente, a pesar de su relativa juventud.

Al examinarla yo ni siquiera le encontraba los pulsos en los pies aunque sí tenia buen pulso femoral en un lado. Esto me hizo sospechar que esta señora por alguna razón tenía enfermaedad vasular, probablemente arterioesclerótica, y yo deduje que si tenia la enfermedad tan pronunciada en las piernas probablemente tambien la teniá en los riñones. Pero ya habiamos investigado la condición renal y el doctor Smithwick un año anterior habia hasta palpado los riñones. De todos modos le hicimos un pielograma y ya esta vez un riñon se viea anterior. Entonces la dimos ismelina, (aunque yo creo que la darentinas hubiera surtido el mismo efecto) en combinación con otras drogas. La señora ahora tiene la presión completamente normal. Todavia tiene sus dos riñones aunque uno no funciona tan bien como el otro y probablemente tiene pielonefritis. Su función renal total, sin embargo, se mantiene intacta.

Este caso ilustra la importancia de la perseverancia. Nuestra filosofia en el tratamiento de la hiptertensión ha cambiado radicalmente con el adventimiento de las nuevas drogas. Hace unos años que nos colmábamos de gloria y satisfacción cuando le damabos alivio a un desventurado que sufria de hipertensión severa. Hoy dia el caso que resalta no es el que responde favorablemente al tratamiento sino más bien el que no responde, pero con la perseverancia en la investigacion para el diagnostico aun el caso mas recalcitrante responderá bien la tratamiento si sabemos la causa de la hipertensión. Tambien hay casos que de un momento a otro, despues de dos o tres años de tratamiento, mejoran notablemente sin que se les cambie ni en un tilde el plan terapéutico. En fin: nunca se da usted por vencido cuando del tratamiento de la hipertensión se trata.

En resumen, el tratamiento de la hipertensión es en fin de cuentas una batalla entre el medico y las fuerazas homeoestáticas del organismo que tienden a mantener un nivel de presión arterial alto a pesar de los cambios a que se someta el enfermo con medicamentos u otros procedimientos terapeuticos. Este mecanismo trabaja tambien afortunadamente cuando la presión se ha estabilizado en un nivel más bajo por cualquier razón o razones y la presión tiende a mantenerse baja aun sin el uso de medicinas por varios meses. Sin embargo, nunca debemos decaer en nuestra vigilia porque si nos descuidamos la tendencia hereditaria o familial del paciente vuelve a imponerse y la presión no tardará en subir otra zez a su nivel original o quizás hasta un nivel mas alto. Nunca pare el tratamiento por completo: reduzca la dosis si lo cree prudente pero no elimine las drogas por completo. Ahorita mismo tengo yo un caso de un jovencito de apenas 18 años de edad a quien mantengo constantemente con una dosis minima de reserpina, unos 0.05 mgms. diarios. Para experimentar yo le he dado a este muchacho placebos por espacio de unos seis meses y aunque él dice que se siente bien la presión le va subiendo paulatinamente y cuando viene usted a ver ya la presión anda por los 160. De modo que una dosis aunque sea mínima de una droga contarestante de esta tendencia hereditaria es indispensable en el tratamiento de esta enfermedad que en mi opinión no deja de ser una enfermedad mala.

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Indications for Office Gynecological Procedures of a Surgical Nature*

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The office treatment of cervical erosions with cauterization, the investigation of the patient having Class III smears, the use of Schiller's solution, cervical biopsy and hospital conization of the cervix are discussed. Vulvar lesions of a surgical nature are mentioned and office treatment under local anethesia is described. (RRL)

THERE are many indications for outpatient surgical procedures for gynecologic patients but time will not permit an adequate discussion of all of them. Therefore, I have chosen to discuss some of the more common lesions of the cervix and of the vulva.

Cervical Lesions: One of the commonest gynecologic lesions is the so-called erosion of the cervix. Some of these erosions show the presence of carcinoma when they are biopsied. It is rather generally accepted that erosions should be treated in order to prevent the future development of carcinoma of the cervix. Therefore, the management of these reddened areas on the cervix is a major problem for all of us, both because of their frequency and because of their potentially serious nature.

There are certain gross characteristics of these lesions which suggest the presence of malignancy. A lesion which has a granular surface, which bleeds easily on wiping with cotton, and is a raised lesion with rolled edges, is more likely to be malignant than benign. Pressure on the center of such a lesion will depress the entire lesion as a solid button of tissue, rather than dimpling the center of the lesion, if the lesion is hard and therefore more likely malignant.

It has been amply proven, however, that one cannot rely on the gross characteristics to determine whether or not a cervical lesion is malignant. With the widespread use of vaginal smears for cytologic examination it has been repeatedly demonstrated that carcinoma may exist in a cervix without producing any observable changes whatsoever on gross examination. Even after having the information that a patient has positive vaginal smears and returning to inspect the cervix carefully we have been unable to detect any gross changes whatsoever, even where carcinoma was later proven to be present. Therefore, it is eminently clear that in order to be certain of the nature of any lesion observed on the cervix, it is absolutely necessary to obtain a biopsy.

For biopsy of the cervix we have employed

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either a Thoms-Gaylor biopsy punch or a Schubert biopsy punch. Both have their staunch advocates and I find little to choose between them. Whichever will effectively grasp the area of the cervix desired is the best instrument to use. If biopsy is difficult, a single tooth tenaculum placed in the anterior lip of the cervix will frequently help in steadying the cervix and providing some counter pressure against which the biopsy can be made. The most important thing about a biopsy instrument is to keep it sharp and this can be done most effectively, I believe, by soaking it in an antiseptic solution for sterilization and preventing well-meaning nurses from autoclaving such instruments. We always obtain vaginal smears at the time that the biopsy is made and the pathologists are quite happy to have this additional material to review. Since the vaginal smears are generally 90-95 per cent accurate in detecting carcinoma of the cervix negative smears are of considerable reassurance before proceeding with the treatment of the erosion.

If biopsies of the erosion and vaginal smears are both negative we proceed with cauterization of the cervix. This is done with a simple National Cautery set with a pistol grip handle. The cauterizing wire is heated to a cherry-red color and ordinarily the erosion is stroked in a radial manner from the external os of the cervix out on to the portio. The cervix is cauterized to a depth of only 1 or 2 mm. We make an attempt to keep from going too far up into the cervical canal and would prefer to do the cauterization in several sittings rather than running a risk of cervical stricture by cauterizing too deeply or too extensively at the first visit. If the lesion is an extensive one we employ the broad cautery tip and "frost" the entire surface of the erosion with the cautery.

The patient who has suspicious or positive vaginal smears without any visible gross lesion poses a special problem. Here, the Schiller Test is of some help. In employing Schiller's solution it is important to remember that it must be used quite liberally so that all areas of normal epithelium will be adequately stained with the solution. For this reason it is helpful to pour a small amount of the solution into the vagina so that the cervix will be very thoroughly coated with it. Then any areas which do not stain can be easily identified and biopsied.

In interpreting suspicious vaginal smears, one must be familiar with the feelings and results in the laboratory where his smears are being read. In our own laboratory a Class III or suspicious vaginal smear means that the patient has a 50-50 chance of having a carcinoma. That is, when all of the patients with this type of smear have been thoroughly investigated we find that about half of them have a carcinoma of the cervix and about half have some atypical changes in the epithelium of the cervix, but not of a malignant nature. If a Class III smear is obtained from a patient then repeated smears should be obtained at intervals of two weeks. If no further suspicious smears are obtained she may be followed as any other gynecologic patient. If, on the other hand, repeated smears are of a suspicious nature, the cervix should be biopsied if any lesion is present either grossly or at the time of a Schiller Test. If no such area can be located then the patient should be admitted to the hospital for a conization of the cervix.

Patients with repeated suspicious or positive vaginal smears who have no gross lesion of the cervix and patients whose biopsies show carcinoma in situ should have an adequate conization of the cervix in the hospital. This cone should completely excise the squamo-columnar junction around the entire circumference of the cervix and should extend a reasonable distance on either side of this border. Therefore, an adequate cone will have a base which is 2 cm in diameter and an altitude of 2 cm. The value of such a cone depends completely upon the manner in which the pathologic examination of the tissue is conducted. If it is adequately studied by an interested pathologist it will give us a very adequate idea of the extent of any changes in the cervical epithelium.

In pregnancy some reddening and irregularity of the cervix is so common that we rely on the smears to exclude the presence of malignancy. We do obtain vaginal smears on all of our prenatal patients and act upon the results in exactly the same manner as outlined above in the case of non-pregnant patients. If there are any suspicious gross lesions or if repeated suspicious smears are obtained we do not hesitate to biopsy the cervix during pregnancy or to perform a conization of the cervix during pregnancy.

Endocervicitis characterized by a profuse purulent discharge from the cervival canal may

be a source of difficulty to a patient either because of resultant infertility or just because of the presence of the discharge. In our hands, this has been treated by radial cauterization of the cervix. It is frequently necessary to go a bit higher into the endocervical canal than is the case with the cauterization of erosions. It is frequently necessary also to cauterize the cervix a bit more deeply in order to cauterize the glands which are responsible for the discharge. Here again, it is probably wise to perform this cauterization on repeated visits, cauterizing only one side of the endocervical canal at a time. We have found this method to be satisfactory and have not resorted to conization of the cervix with the cautery. Neither have we employed surgical conization of the cervix for this lesion but have found repeated cauterization on an outpatient basis to be ultimately satisfactory.

Vulvar Lesions: Pruritis of the vulva is such a common symptom that its treatment is frequently relegated to a telephone suggestion to take vinegar douches. We must remember, of course, that this may be a symptom of a serious lesion such as a carcinoma of the vulva and must be careful to examine all such patients very carefully before suggesting any treatment.

Many lesions of the vulva can be removed in toto under local anesthesia on an outpatient basis. Simple local infiltration in the subcutaneous area with 1 per cent Xylocaine solution provides good anestheisa for such procedures. It is important to remove all such lesions with a sufficiently wide border of normal skin around them to be certain that the lesion has been completely removed. This means that a minimum of 1 cm. of normal skin should be removed along with the lesion on all sides.

If a lesion is so large that removal on an outpatient basis is not easily possible it is best to admit such a patient to the hospital for an excisional biopsy under general anesthesia. It is unwise to perform an *incisional* biopsy on a vulvar lesion which may be malignant.

Lesions of the vulva which are most apt to be malignant are those which are raised into a fungating mass. The surface is cobbled in appearance and may bleed easily. These lesions are frequently infected so that the surface is covered with a purulent exudate. Melanotic lesions of the vulva are also highly suspicious.

A common lesion of the vulva which is easily treated on an outpatient basis is a Bartholin cyst. When such cysts produce recurring symptoms they are best excised or marsupialized. Excision requires hospitalization and has been attended by occasional complications in the form of subcutaneous hemotomata and, therefore, marsupialization is gaining increasing popularity.

Anesthesia is adequately established by local infiltration in the subcutaneous area along the line of proposed incision of the Bartholin cyst with 1 per cent Xylocaine. A pudendal block on the same side of the pelvis is also very helpful.

The cyst should be incised along the inner surface of the labium minus. It is incised along the entire length of the cyst. Two distinct layers will be easily visualized. The inner layer is the epithelium of the Bartholin gland duct and the outer layer is the vulvar skin. These two layers are approximated with a series of interrupted sutures. Gastrointestinal suture of 0000 chromic is quite satisfactory. These sutures result in some eversion of the mucosa of the duct and form a new ostium for the gland.

We have had no difficulties with bleeding or other complications and are very well satisfied with the procedure. Occasionally we have noted that if the ostium is placed out on the surface of the vulva or if the ostium is too small the patient continues to have a purulent discharge from the area. If these two faults are avoided, however, the cyst remains colapsed and the patient remains asymptomatic.

Summary: I have discussed some of the more common lesions of the cervix and vulva and the surgical procedures which may be performed on an outpatient basis to treat them.

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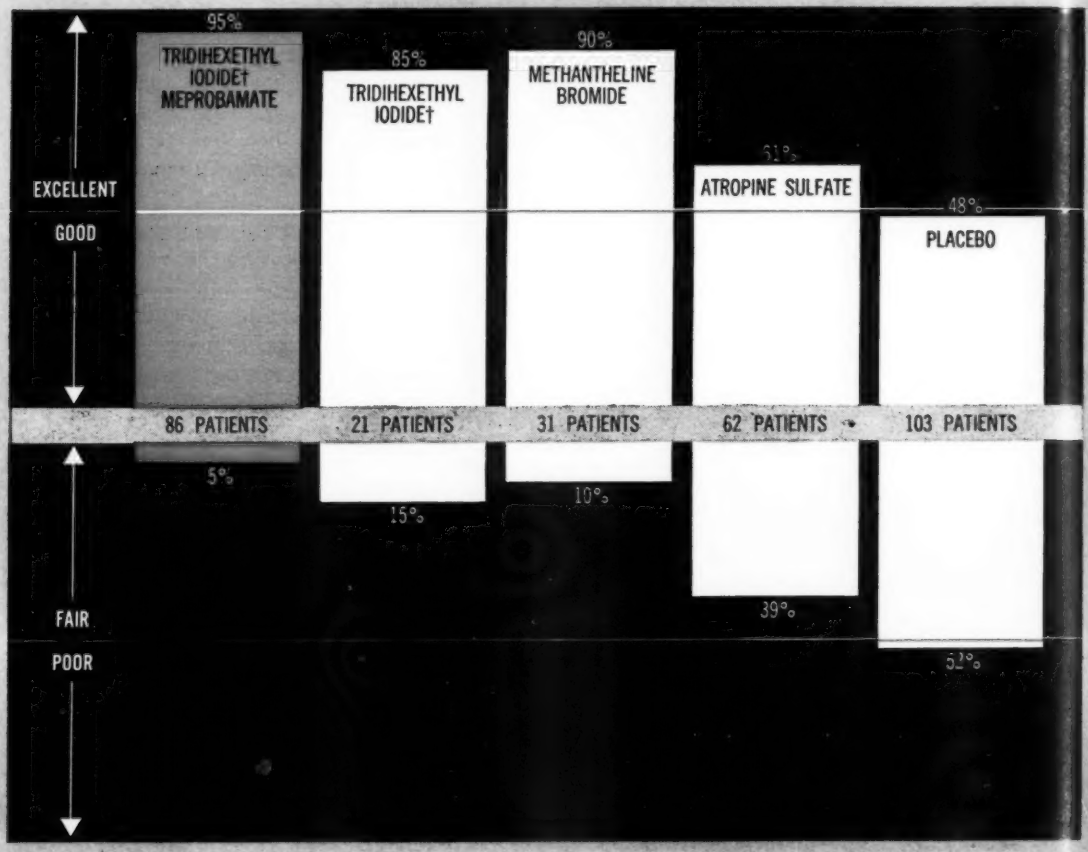

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VISUAL DISTURBANCES	0%	0%	50%	34%	1%
URINARY RETENTION	0%	0%	18%	11%	1%
DROWSINESS	20%	0%	0%	0%	0%
COMPLICATIONS OR SURGERY					
HEMORRHAGE	0%	9%	3%	9%	10%
PERFORATION	0%	0%	0%	6%	0%
OPERATION	0%	5%	5%	14%	2%
RECURRENCES					
NONE	28%	23%	25%	17%	26%
FEWER AND MILDER	67%	62%	52%	37%	24%
SAME OR MORE	5%	15%	23%	46%	50%

*Atwater, J. S., and Carson, J. M.: Therapeutic Principles in Management of Peptic Ulcer. **Am. J. Digest. Dis.** 4:1055 (Dec.) 1959.

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The Role of Civil Defense In National Strategy*

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This article gives a resume and understanding of the civil defense problem as it has not been presented before by either the military or the Office of Civil and Defense Mobilization. This is written in understadable terms with a reasonable solution at a reasonable cost and shows that this is not an insurmountable problem but that one can take a practical and not a fatalistic outlook upon the impending attack that may very likely come from either Russia or, in time, Red China. (DWN)

THE MAJOR reasons for maintaining a civil defense program are: to deter aggression, to protect population, and to ensure postattack recovery. I want to discuss in some detail now how these roles of civil defense can be carried out in our nuclear age.

The deterrent role of civil defense is the one most relevant to circumstances facing us today. How can civil defense support our present military strategy of deterrence, which rests upon the threat of massive counterattack? General Pierre Gallois has suggested that a policy of deterrence, to be credible, must be backed simultaneously by three conditions: adequate material forces, values clearly worth defending, and national will. It is in connection with this third aspect of deterrence that civil defense has an essential role to play; for national will can be fortified by the knowledge that attack can be survived, that postattack recovery can take place.

But the deterrent effectiveness of civil defense depends fundamentally, of course, upon the ability of civil defense programs to fulfill significantly their second function — that of protecting population. We will not inspire our own people with the will to resist nor will we discourage an enemy from attacking us if we really cannot guarantee that a major portion of our population and our resources can survive the effects of nuclear attack. What are the requirements for nonmilitary defense of our population?

The first need is for protection from fallout. In many areas, existing structures are so constructed as to provide adequate fallout protection. While fallout intensity is difficult to predict at any place, a shelter that would reduce exposure to radioactivity by a factor of 250 would be satisfactory for the fallout levels we would be likely to have in most areas after even the most comprehensive attack. Because of the nature of the postattack environment and the short length of the actual shelter confinement period (a maximum of several weeks), only a

*Presented before the Ninth U. S. Civil Defense Council Conference, Medical-Health Section, September 21-22, 1960, Minneapolis, Minnesota.

very small reduction in the total effective biological dose of radiation is gained by increasing the protection factor even as high as 1,000. Fallout shelter would be required after any expected type of attack with the exception of air bursts over point targets, which are considered an unlikely tactic against the United States. Calculations for many possible attacks show that in the United States over half the population lives in areas where people would survive if they had fallout shelter but could die without it.

Fallout is not the only hazard. The immediate weapon effects — heat, fire, the force of the blast, and radiation from the fireball itself — are the principal dangers in areas near the ground zero. Blast shelter can reduce up to 200 times the area in which blast effects of one weapon would be fatal. Studies of many possible attacks on the United States indicate that a program providing good blast shelters in urban areas plus fallout shelters elsewhere could hold total casualties to 10 percent of the population.

Such conclusions are based upon a careful appraisal of all the factors that make up the potential threat. This threat analysis involves a number of steps. First, the type and number of nuclear weapons available to the enemy are estimated. We then appraise the destructive power, reliability, and aiming error of those weapons, and assess the capability of U. S. air defense to cope with them. Targeting studies of the entire United States are prepared, based on the estimates of enemy capabilities and of U. S. defense capabilities and on the geographical distribution of U. S. military installations, critical industry, and population.

A wide range of possible attacks is considered, including assaults on one or more of the following: retaliatory military bases, all military installations including retaliatory bases, critical industries, industry in general, and population. Attacks using manned bombers or submarines instead of or in addition to missiles are also examined. For each attack, we assume the enemy to be seeking maximum results per weapon expended, and we therefore assign bombs to targets across the country on a net-gain basis.

The framework for this allocation is the National Damage Assessment System, a set of weapon and resource data and electronic computation procedures devised by Stanford Research Institute for measuring the results of a nuclear attack upon the United States. Although designed to provide a rapid estimate of surviving population and resources following an actual assault, the Damage Assessment System is equally valuable for targeting purposes, since it enables an analyst to predict the losses that would be incurred from the detonation of a given weapon at any spot in the United States under a variety of conditions, such as height of burst, direction of wind, and time of day. Having estimated attack losses under a no-shelter condition, we may then test the effectiveness of various types of shelter programs in reducing population losses under various types of attack.

Could the nation bear the cost of any civil defense program that could contribute a significant saving in lives? Studies at Stanford Research Institute have indicated that effective shelter systems can be designed for costs that are small in comparison with our present total defense budget. The fact can be illustrated by three nonmilitary defense programs that represent the range between the lower and upper limits of complete programs for protection. The minimum program involves maximum use of existing facilities for fallout shelter, the intermediate program involves construction of special fallout shelters by the government, and the maximum program involves construction of special blast shelters in metropolitan areas and fallout shelters in nonmetropolitan areas.

Shelter is the central feature of all three programs because it saves lives directly. Evacuation can also save lives, but it is effective only with sufficient warning and does not eliminate the need for fallout shelter. One-third to one-half of the cost of each program is in shelter; the remainder is for warning, decontamination, monitoring, stockpiling of food, and so on.

The minimum program requires the public to make maximum use of existing fallout shelter resources, to improve them where necessary, and to provide itself with survival supplies. This would involve an average initial investment per family of about $100. In addition, the government would have to act to make the individual's investment effective. The government would have to provide adequate warning, survey and mark existing shelter in large buildings, provide

for monitoring of radiation hazard, inform the public, and so on. The cost of these activities to government would be about one-half billion dollars or, if the program were completed in two years, about $1.50 per person per year. This contrasts with $230 per person for the present U. S. military budget.

Such a minimal civil defense program could save many potential victims of fallout, but it would not protect persons exposed to the impact of blast within a few miles of the ground zero. Furthermore, existing facilities that offer enough shielding to be useful in such a fallout shelter program could serve only about 25 percent of our population. This kind of protection would save enough people to ensure national recovery only in the case of an attack upon our retalitory military bases, since in these locations population densities (and therefore blast casualties) would be relatively light. Of about 40 million persons who would be victims of such an attack, about 20 to 30 million people who would otherwise be victims of fallout could be saved by this minimum program. The program would not save enough lives for national recovery from attacks directed against major population centers, however, and it would probably not be effective against the weaponry in use after the next few years. Thus, while the minimum program offers a significant saving of lives under some circumstances and is feasible for individuals in some localities, it could not be considered adequate as a permanent national policy.

The intermediate program involves government construction of special fallout shelters and provisions of emergency supplies for them, in addition to warning, monitoring, and the like provided under the minimum program. Unlike the minimum plan, this program would assure fallout protection for *all* the population under any attack at least through the 1960's and would avoid any danger of individual misjudgment as to the adequacy of improvised shelters. A national fallout shelter program is particularly appropriate for the United States because about half the U. S. population is in rural centers too small for direct targeting under any enemy objective and therefore faces fallout but not blast hazard. For these reasons the intermediate program could add 60 to 90 million survivors to the number who would survive with no program. Though the intermediate program could not save the millions of blast casualties who would be victims of an attack against major population centers, it *could* assure the survival of at least half the U. S. population. The cost, if the program were completed in six years, would be about $5 billion per year, or about $30 per person per year.

The maximum program would provide shelter against immediate blast effects in metropolitan areas plus fallout shelter elsewhere. A question often raised about such a program is whether, in case of attack, enough warning time would be available for people to reach blast shelters. By the time a blast shelter program could be implemented, the answer could probably be affirmative for most areas. The reason for this is that it is extremely important to an enemy to achieve simultaneity in any attack upon retaliatory bases in order to preclude a return attack upon himself. During the several years it would take for a blast shelter program to be implemented, there would be a continuing increase in the numbers of retaliatory bases situated throughout the Free World; the larger the number of these targets, the more difficult it would be to strike them simultaneously. It is therefore unlikely that an enemy could afford to include population and industry targets as well in his first strike. Thus the fall of weapons on retaliatory bases would occur before fall of weapons on civil targets and could provide warning in time for the population to reach blast shelters before the second strike.

If the maximum blast and fallout shelter program were to be completed in eight years, it would cost about $5 billion per year for the blast shelter portion of the program, but the fallout shelter portion would cost less than under the intermediate plan because the metropolitan blast shelters would also offer fallout protection. The total cost over eight years would be about $55 per person per year, and ths maximum program would assure survival of about 90 percent of our population under even the most comprehensive type of atttack in the late 1960's time period.

To say that an adequate program of fallout and blast shelter can assure survival is not to say that a postattack radioactive environment would take no toll at all. However, the toll can be minimized and, even in the worst case, would

equal a setback of a few decades in medical history: the proportion of stillborn and deformed children would be about what it was 30 years ago — 5 in every 100 births, according to the most pessimistic of the reliable sources, rather than 4 in every 100 as today. Individuals who have received close to sickness dosages of radiation might die 10 to 15 years earlier than they normally would, but their life expectancy would still be as long as our grandfathers' and longer than that of most other peoples in the world today. Even this outcome would not be inevitable. Since radiation-produced disabilities like leukemia and bone cancer take longer to develop than the normal life expectancy of people over 35 or 40 years of age, people in this age group would have less to fear from exposure to radiation than would younger persons. Thus if postattack responsibilities were so arranged that those over 35 or 40 performed the cleanup and other hazardous work, sharing the load so that no one person would get disproportionate exposure, it is entirely possible that the radioactive postattack environment would have very little deleterious influence on the average life span.

So much for the major medical considerations. What would the postattack social environment be like? Should we expect a desperate, hysterical fight for the surviving resources? On the contrary, the experience of the Red Cross and other disaster organizations is that people under stress of war, natural holocaust, and similar situations do act constructively and in the common interest; they do not act hysterically, except in a very few cases. In fact, the occasional hysterical reaction encountered is one of immobility rather than of hyperactivity: an insistence upon staying with remaining possessions rather than actively setting the world to order again.

The postattack economic situation would not give cause for panic, in any case. This statement can be made as a result of work done in connection with the third role of civil defense — that of ensuring recovery. This role involves both a research and a planning aspect. We must examine the vulnerability to attack of each component of the economic system, investigate the effect upon each component of the loss of various other components, and plan for stockpiling or other means of compensating the deficiencies that would exist. At Stanford Research Institute we have been conducting studies along these lines for a number of years, and our findings are, in general, encouraging.

You may wonder whether we would not at some point actually aggravate rather than ease postattack conditions by arranging protection from attack effects for our citizens — whether at some point a greater number of survivors would not place an excessive demand upon the remaining resources. It may be useful, therefore, to consider the situation that would arise from a maximum enemy attack — one directed against both our military and our urban centers — if we were protected by a complete fallout and blast shelter program. As mentioned earlier, such a program could save up to 90 percent of our population.

Even a maximum enemy attack would leave these survivors enough food, fuel, water, and shelter to meet their basic needs for some time. Stockpiled farm surpluses alone could feed the surviving population for at least two years. In addition, at least 30 percent of our cropland would be sufficiently radiation-free to produce foods safe for human consumption; this amount of land is enough to meet our food requirements under any shelter program. Enough farm machinery would be available to meet the need for 10 to 15 years after an attack. Most counties have an underground water supply that would remain free of radioactive contamination for an extended period. Even the amount of strontium-90 that would reach this water through percolation would not be serious. Surviving petroleum fuel stocks and petroleum production capacity would be sufficient to meet essential recovery requirements, including agricultural production, for two postattack years. And the number of dwelling units remaining after the attack would still provide more housing per person than exists in any other nation of the world today.

Power and transportation would also be available. Electric power and generating plants should withstand attack better than their consumers, and they are generally close to the demand. These plants normally have on hand fuel for several months' operation; with operations curtailed to supply a reduced load, these stocks should last many months. Enough transportation equipment would survive to last many years.

For movement of essential commodities, air transport could be back in operation immediately, railroads could be running within at least two weeks, and trucks could operate in all local areas within six months after an attack.

The finding that railroads could be in operation within two weeks after any attack is a rather recent outcome of our studies at the Instiute, and it is important for at least two reasons. Firs, it makes unnecessary an expensive preattack allocation of food stocks and other essential resources (unless such a predistribution seems advisable as a precaution against regional hoarding). Second, and more important, by assuring a continuing flow of goods across the nation and therefore the continuing need for central regulatory bodies, it suggests that there would be no lapse in the functioning and authority of central government. We need not visualize our country broken up into increasingly self-sufficient little islands of survival reluctant later to relinquish their authority and mistrustful of the general interest. The nation will be stronger for being able to remain so intact.

I have said that even the maximum number of people we could save by a shelter program would have available to them in the immediate postattack period more than a minimum of the basic essentials for survival and recovery. Clearly, the fewer survivors from a given attack, the more supplies and facilities for each person surviving. But even with a maximum number of survivors, the essential needs of the surviving population could never place such a burden upon surviving resources that recovery would be impossible. On the contrary, the greater the number of people who survived attack, the more labor force, technical know-how, and managerial skill we would be able to apply to postattack problems and the faster recovery would be able to take place. About a fourth of the nation's industrial plant, in addition to the agricultural resources I have already mentioned, would survive even the heaviest enemy attack upon our country. Maximum use of this recovery potential would require the maximum number of people that could be saved by a shelter program.

The postattack environment would not be pointless. But the postattack environment would certainly raise many problems it is important to anticipate. We can anticipate some of them by having an adequate shelter program – either the medium or the maximum program I have discussed, so that the larger portion of our population would be saved from even the heaviest attack an enemy might launch. We can anticipate other postattack problems with a continuing program of research and planning for the recovery period. And one of the strongest reasons for taking both actions is that the readier we are to receive attack, the less likely the attack is to occur.

If our studies at the Institute have convinced us of the strategic importance of civil defense and of the high degree of effectiveness oftainable from certain civil defense measures, what have we done about survival planning for ourselves? The question is appropriate since the U. S. government currently supports a "do it yourself" program of civil defense.

The Stanford Research Institute civil defense program consists of three plans for survival: SRI basement shelter, evacuation, and home shelter. The program is designed to save the lives of families as well as employees and is fully integrated with local, state, and federal civil defense arrangements. In line with national policy, it endeavors to exploit the defense potential of available structures and equipment.

The first step in preparing the plan was to make a detailed analysis of the effects upon our Menlo Park headquarters and the surrounding San Francisco Bay area of a wide range of possible attacks, in the manner I described earlier. We then computed and plotted on local maps the probabilities of blast destruction and intensive fallout for the entire range of assaults.

The next step in preparing the program was to locate on a map the offices of the Institute and the homes of our 1,500 employees. Although this map showed a fairly heavy concentration of families within two or three miles of the Institute, it also showed that some employees lived as much as 40 miles from our offices. This map was then examined in conjunction with the threat maps and other attack data to determine the probable effects of nuclear attack upon SRI staff members and their families, if the assault caught them at home with no warning.

When combined with the map of home loca-

tions, the threat analysis clearly indicated that SRI families would need protection, no matter what kind of nuclear attack the enemy might launch. For example, a heavy assault that included bombing of the naval air station at nearby Moffett Field would cause severe blast damage to an area in which many staff members live: 23 percent of our employees could die from immediate or subsequent effects of an attack upon this particular target. Virtually all of those who survived the blast effects would be killed by fallout unless they took the necessary steps to protect themselves. In fact, even the lightest assault on the San Francisco Bay area would almost certainly produce a lethal rain of fallout over our area within about half an hour.

Our next step, then, was to investigate available means for meeting the fallout and blast hazard. With respect to fallout, we knew that a wood frame house could protect its occupants from about 50 percent of outside radiation, and that a home basement could cut the intensity to about 5 percent. But neither of these degrees of protection would be likely to suffice for conditions expected in our area. The basement of the main Stanford Research Institute building, however, was found to offer adequate fallout protection from the heaviest possible attack. Since it takes about half an hour after surface detonation of a weapon for a dangerous level of fallout to accumulate on the ground, a great number of SRI employees and their families who survived the explosion at home would be able to reach the Institute in time to avoid dangerous contamination.

Besides offering fallout protection for any attack likely in the San Francisco Bay area, the Institute basement will also provide five pounds per square inch blast protection. This would be adequate in the event of an attack on Moffett Field, which is more than five miles away from the Institute. Preattack warning would be necessary for utilization of the basement as a blast shelter, but intelligence estimates indicate the possibility of some notice in the Menlo Park vinicity, at least until the mid-1960's. In certain circumstances, therefore, the basement shelter could reduce the number of fatalities from blast as well as from fallout.

For staff members who live too far from the Institute to reach it within a half hour, we investigated the feasibility of two other courses of action: evacuation and home shelter. We found that those employees who live on the periphery of our population basin would have time to evacuate to an area of less fallout hazard, such as the Monterey Peninsula (the prevailing winds on the Peninsula move from west to east). The remainder of our staff members, it appeared, would be well advised to have previously prepared home shelter. One blast and fallout shelter we designed at Stanford Research Institute would cost about $375 to construct for a family of six; other shelters would be more expensive. With sufficient warning time, both the evacuation and the home shelter plans could prevent blast as well as fallout casualties by permitting people to put distance or mass between themselves and the explosion.

Before details of the three survival plans could be presented to staff members and their families, it remained for us to carry out the necessary arrangements and alterations that would make our Institute basement operational as a fallout and blast shelter. We did have built-in shielding from outside radiation. The basement floor is an average of 15 feet below grade and is shielded by the surrounding earth from radiation on the ground. In addition, protection from fallout on the building roof is provided by 40 feet of distance between the roof and basement floor, and a total of 13 inches of concrete in the roof and two floors above the basement. This shielding would reduce radiation to 1/250 the outside levels, an adequate reduction for any fallout conditions we can anticipate for the next several years. But to prevent leakage of radiation, removable four-inch thick concrete slabs on concrete block supports had to be placed above all exterior ventilation and service wells opening onto the basement. Connections and hoses were also installed where necessary to permit the slabs and surrounding ground to be washed free of fallout following an attack. The total cost for these improvements was about $300. The depth and strength of the Institute basement also offer adequate protection from blast effects of any attack on local targets, with the unlikely exception of direct attack on Palo Alto or Menlo Park.

Space was the next consideration. Allowing 10 square feet per person, our basement could provide shelter for a maximum of 3,000 people, or roughly two-thirds of the staff members at

our Menlo Park offices and their families. The remainder of our staff and their families could be accommodated in the basement of an adjoining Institute building, which is currently under construction. Incidentally, inclusion of a basement in the plans for this new building was found to be a sound move quite apart from civil defense considerations and despite the local building convention against underground construction: basement office and storage space proved more economical than comparable space above ground.

Food for the shelter occupants did not pose as great a problem as you might expect. We were able to obtain a ten-day supply of the minimum diet dry ration, Multipurpose Food*, at a cost of three cents per meal per person, or $2,700 for the 3,000 persons who could be sheltered in our present basement. Although this product is now distributed at a slightly higher cost, it is still an extremely economical and satisfactory answer to the shelter food problem. In many cases the availability of such a low-cost, compact ration would be the critical factor making possible a shelter program for a large staff. In order to make shelter life more comfortable, our staff members were invited to store in the basement a footlocker of supplemental food and other supplies, including bedding.

To insure a supply of radiation-free water during the period of confinement, a well was drilled next to the basement at a cost of $2,300. Although there is little danger in our particular area of losing the municipal water system in an attack, water is much more a necessity of life than is food, and the installation of this well was therefore considered essential to the program. Actually, the well can pay for itself over a 12-year period by providing low-cost water for irrigating the grounds of the Institute.

Communication facilities were another necessity of the basement shelter program. First, we needed some means of conveying warning to our staff. Stanford Research Institute is tied into the civil defense warning net and will receive an attack warning at the same time as the local fire station. However, since a siren warning might be misunderstood by many listeners, we decided to communicate the alert to our staff over a special high-volume loudspeaker developed at the Institute.

In addition to the warning facilities, we needed short-wave apparatus for sending and receiving information about attack damage and fallout conditions. This information would enable us to determine for ourselves as well as for others in the community what would be the most suitable post-shelter course of action: decontamination of our own area or evacuation to some less contaminated area. CONELRAD, of course, is expected to perform this function under present civil defense plans, but CONELRAD facilities so far are not provided with protection to assure the survival of their broadcasters. Short-wave equipment at Stanford Research Institute could also be used in conjunction with our electronic computer systems to assist the government with inventory of postattack resources and with recovery planning.

Short-wave transceivers were already on hand at the Institute to form the core of a basement communications center, and arrangements were made for emergency communication with local police and sheriffs' offices, military headquarters, the Military Amateur Radio System, civil defense offices, and the Red Cross. To provide power for communication, as well as for the water pump, lighting, ventilation, and sewage disposal, we purchased at a total cost of about $5,000 a motor generator and a 1,000-gallon diesel storage tank to hold two weeks' fuel supply. Interestingly enough, we found that the generator would soon pay for itself by providing standby power during ordinary lapses in the commercial power supplied to the Institute.

A few other aspects of our basement shelter program are worth mentioning briefly in order to round out your picture of the plan. In order that medical services might be available, a number of local doctors and their families were invited to participate in the basement shelter plan. Emergency medical supplies were stored in the basement and the Institute's medical office will be moved to the basement area. Sanitation requirements involved no extra investment: toilets in the basement were part of the original construction plan, and water and power for their operation can be supplied by the emergency well and motor generator. Provision for monitoring radiation also did not add any cost to the plan,

*Available from General Mills, Inc. (Sperry Operations), in Oakland, California, and other cities across the country.

since monitoring instruments and trained personnel were already available within the Institute. Equipment suitable for decontamination of the surrounding area was in daily use by the Institute's maintenance department, but showers and other facilities for personal decontamination were set up in the basement so that radioactive particles that became attached to the skin, hair, and clothing of entering occupants might be removed. Arrangements for information and control, plant shutdown, fire protection, safeguarding of records, and community assistance were also included in the planning.

Finally, details of the three survival plans — SRI basement shelter, evacuation, and home shelter — were presented to staff members and their families in a brochure entitled *LIVE: Three Plans for Survival in a Nuclear Attack.*

This booklet provided background on the threat, described the rationale and functioning of each plan, and listed supplies and food that would be needed by those who chose evacuation or home shelter. Sections on sanitation, first aid, decontamination, and shelter were also included. Each staff member then had accurate information upon which to base his selection of a survival plan.

This informational phase of the planning cannot be overemphasized. Much of the popular feeling of skepticism toward civil defense is the result, I believe, of a failure to obtain complete information. Lacking all the facts, many people have considered the building of fallout and blast shelter to be a neurotic rather than a rational act. In this atmosphere, other persons who did have sufficient information to realize the wisdom of family or organizational civil defense planning were nevertheless a little hesitant to act upon their convictions.

Our *LIVE* brochure not only presented the facts to the uninformed, it also presented an encouraging precedent to those who *were* informed. Stanford Research Institute, with the benefit of its years of investigation into both military and nonmilitary defense problems, evidently believed that fallout and blast shelter programs of modest costs were both feasible and timely. Once our *LIVE* brochure was in circulation and the Institute's basement shelter plan had been reported in the local press, we began to receive many inquiries from individuals and firms anxious to initiate their own shelter programs. These inquiries continue to come to us from all over the country and even from some foreign countries. In response to this interest, we have exhausted two printings, totaling 10,000 copies, of our *LIVE* brochure, and the Office of Civil and Defense Mobilization is currently printing 35,000 more. The public is not apathetic toward civil defense. The public responds to balanced, accurate information on which it can base realistic action.

The Stanford Research Institute basement shelter plan has caught the public's interest for a number of reasons. First, it is simple. All the staff member has to do is know the warning signals, make an advance plan by which to assemble his family at the Institute when the appropriate signal is given, and move through the proper entrance into the basement area designated for his family. The Institute's basement shelter plan is also relatively inexpensive. It cost the Institute only a little over $10,500 for 3,000 persons, or about $3.50 per life potentially saved. Compared with costs of other employee benefits, the cost of the civil defense plan was negligible. A third merit of the Institute's basement shelter plan is that it keeps families together rather than providing only for the individual staff member; at the same time, it assures survival of an organized group of people accustomed to working together. Both of these conditions will allow us to make a more effective contribution in the recovery period. Finally, the basement shelter plan is effective: it does offer life-saving protection from local fallout and blast effects of any nuclear attack we may anticipate for the next several years.

This program is Stanford Research Institute's response to our government's current civil defense policy. Through similar planning — with some modifications appropriate to local conditions — other individuals and organizations can substantially improve their chances of survival and the nation's prospects of postattack recovery. *You* can help by letting others know that effective civil defense programs are within their reach and by initiating family, institutional, or community plans where you work or live. You may in this way help harden our national target system to the point that no enemy will find it profitable to attack, regardless of his fears of instant and devastating retaliation.

Clinical Experience With Medrol Medules: A New Long Acting Oral Corticosteroid Preparation

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A new specially coated preparation of methylprednisolone has been studied clinically in a group of 21 patients with various allergic disorders.

The majority of the patients were controlled on a once or twice daily dose.

In the group of chronic asthmatics it was possible to maintain equal control with a decrease in the total amount of steroid needed in a majority of the patients.

Side effects were minimal in the entire group. One patient had to discontinue therapy because of a side effect.

H.T.F.

THE aim of therapy, in general, is to relieve symptoms and prevent recurrence through etiological management. In the field of allergy such a program is possible in the majority of patients.

Symptomatic management with drugs, hormones and supportive measures are essential in most phases of clinical medicine. This becomes more important when etiology escapes detection.

Many allergic patients require symptomatic management on either a short term or chronic basis. Some of these patients can be placed on drug therapy such as antihistamines or bronchodilators but a significant number require the use of adrenal corticosteroids for better management. Since the introduction of cortisone in 1950, many new derivatives have been synthesized. Among these is methylprednisolone** which was synthesized in 1956(1). Early clinical experience with methylprednisolone was reported by Brown and Seideman,(2) Nierman and Van Metre,(3) Feinberg(4) and Grater(5). These workers found that this drug was somewhat more potent than prednisolone and that the fluid and electrolyte disturbances that had been associated with cortisone, hydrocortisone, and ACTH therapy were not observed(3). Brown and Seidman observed less side effects with methylprednisolone than with prednisolone in a double blind study during the ragweed, hay fever season in 1957.

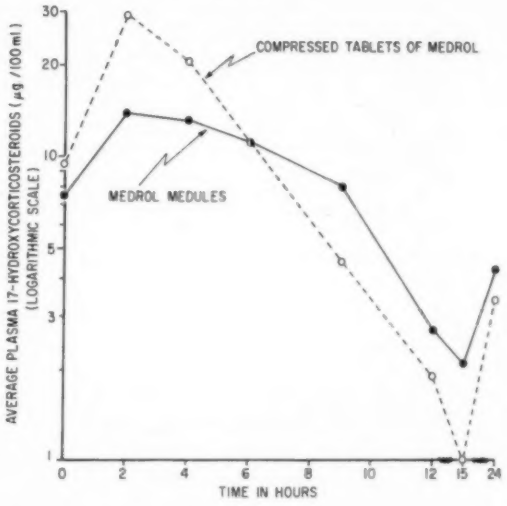
As has been true with all of the newer derivatives, methylprednisolone has been observed to be somewhat superior to other steroids in large groups while in isolated patients it may not be effective. Such observations are unexplainable on the basis of our present knowledge. Ideally, steroids are useful in allergic diseases in the highly symptomatic patients for short term use during diagnostic work-up. It may be necessary

**Medrol®

to continue them for the first month or two of specific immunological therapy. In acute drug reactions and in a small percentage (less than 1 per cent) of chronic bronchial asthmatics with marked irreversible emphysematous changes and in severe atopic dermatoses, they are also indicated. The aim of all non-specific therapy has been to maintain adequate blood or tissue levels at a constant concentration throughout the 24 hour period. This is not usually possible with the average oral corticosteroid because of the relatively short half-life that is observed with these compounds. This shorter half-life means that the compounds have to be given relatively frequently in order to maintain smooth blood levels. One of the other facets of oral corticosteroid therapy has been the incidence of gastrointestinal side effects observed with these compounds. A great deal of variation has been reported and it is thought by some investigators that there may be a local effect on the gastric mucosa from the steroids which may in part explain some of the symptoms(6).

Keeping the above points in mind, recently there has been developed a new, more prolonged form of methylprednisolone.* This is a capsule containing the dose of methylprednisolone as many evenly coated granules of the drug. The granules are coated with an inert plastic material which is insoluble in highly acid media. Blood level studies comparing the plasma 17-hydroxy corticosteroid concentration following the oral administration of methylprednisolone as tablets or as the new coated granules of Medrol is demonstrated in Figure 1. These studies were carried out in 20 normal, healthy subjects who received a dose of 40 mg. of methylprednisolone (as tablets or medules) after a fasting plasma level of 17-hydroxy corticosteroids was obtained. They had repeated plasma steroid levels run at 2, 4, 6, 9, 12, 15, and 24 hours. The plasma concentration curves indicate that the absorption from the tablets was practically complete in 4 hours and that there was a straight line fall-off of plasma steroid level from that time on. In contrast, the methylprednisolone coated granules demonstrated continued absorption up until approximately nine hours at which time there was a straight line fall-off of plasma levels. Thus, it can be seen that a smoother and more prolonged plasma level of steroid can be obtained with the use of this material.*

FIGURE I



Materials and Methods:

Clinical trial was carried out in 21 allergic subjects fitting all or some of the criteria mentioned above. Methylprednisolone coated granules were administered as 4 mg. capsules on a twice daily dose in almost all patients. This study has been conducted over the past nine months. Comparisons to other shorter acting steroids in essentially the same phase of each patient's disease process were made by the author on all patients.

The 21 patients in this series were made up of a group of 15 females and six males with an age range from 9 to 73 years.

TABLE I

Diagnosis

Primary	Number	Secondary*	Number
Bronchial Asthma	15	Pulmonary Emphysema	8
Atopic Dermatitis	2	Allergic Rhinitis	6
Allergic Rhinitis	1	Bronchial Asthma	2
Rheumatoid Arthritis	1	Gout	1
Periarteritis Nodosum	1	Virus Pneumonia	1
Acute Laryngitis	1	Bronchiectasis	1
		Atopic Dermatitis	2

*Actually several patients had more than one secondary diagnosis. Further progression of pulmonary emphysema such as cor pulmonale is not listed - nor are other conditions including one diabetes mellitus.

* Medrol Medules, 4 mg. (Furnished through the courtesy of Hubert C. Peltier, M.D., The Upjohn Company, Kalamazoo, Michigan)

*This data was obtained through the courtesy of Dr. Harold L. Oster of Jackson, Michigan. Plasma steriod levels were done at Bio-Science Laboratories in Los Angeles, California.

The diagnosis as seen in Table 1 was broken down in primary and secondary diagnosis. The table only shows the total of each primary diagnosis and of each secondary diagnosis. Because of the author's long experience with the therapy of the chronic bronchial asthmatic patients, many of whom had complicating irreversible pulmonary changes, this group of patients is broken down separately.

TABLE II

Fifteen Patients with Bronchial Asthma

Patient Number	Primary Diagnosis	Secondary Diagnosis	Age	Sex	Results			Side Effects
					Superior	Same	Failure	
1	Bronchial Asthma	Pulmonary Emphysema	55	F	X			None
2	Bronchial Asthma	Allergic Rhinitis Gout	53	F			X	None
3	Bronchial Asthma	Virus Pneumonia	73	F	X			None
4	"	Allergic Rhinitis Pulmonary Emphysema	55	F	X			None
5	"	Bronchiectasis	31	F	X			None
7	"	Pulmonary Emphysema Cor pulmonale	70	M	X			None
8	"	None	9	M	X			None
9	"	Pulmonary Emphysema Atopic Dermatitis	22	M			X	Gastric Distress
10	"	Pulmonary Emphysema	49	F			X	Wakefulness, occipital headache
11	"	Pulmonary Emphysema	49	M	X			None
12	"	Pulmonary Emphysema	44	F	X			None
15	"	None	50	F			X	Cushingnoid
18	"	Pulmonary Emphysema Cor pulmonale	64	M	X			None
19	"	Atopic Dermatitis	30	F			X	None
20	"	Allergic Rhinitis	52	F	X			None

Clinical Results:

It is of interest to note (Table 2) that 10 of these 15 patients rated the longer acting preparation as superior to their prior steroid medication. However, in the five patients who considered the medication to be inferior to their prior steroid therapy, three of these cases (numbers 2, 9, and 19) had other complicating allergic disorders. Two of them (numbers 9 and 19) had atopic dermatitis and one of them (number 2) had allergic rhinitis. In the group with primary pulmonary disease, 10 of the remaining 12 rated the preparation as superior (one of whom also had allergic rhinitis).

The remaining six patients are broken down in Table 3 and help to emphasize the response in those with complex diseases.

We were particularly interested in our asthmatic patients in determining three things.

1). Is it possible to decrease the total amount of steroid required by the use of a longer acting preparation?

2.) Is it possible to decrease the frequency of dose and maintain good control?

3.) Is it possible to decrease the side effects seen with other preparations when the patient is placed on the new long-acting preparation?

In Table 4 we have compared the frequency of administration and the total amount of steroid required to maintain control in the 15 patients with a primary diagnosis of bronchial asthma. In order to simplify the over-all comparison, we converted other steroids to equivalence of methylprednisolone. The commonly accepted standard is that 20 mgm. of hydrocortisone is equivalent to 5 mgm. of prednisone or prednisolone, 4 mgm. of methylprednisolone or triancinolone or to .75 mgm. of dexamethasone. In one patient the new drug was not compared and in one patient prior steroid dose was not known.

In the other 13 patients it was possible to decrease the frequency of dose in eight patients.

TABLE III

Six Patients with Varying Primary Diagnoses

Patient Number	Primary Diagnosis	Secondary Diagnosis	Age	Sex	Results			Side Effects
					Superior	Same	Failure	
6	Atopic Dermatitis	Hay Fever	28	M			X	None
13	Atopic Dermatitis	None	9	F		X		None
14	Periarteritis Nodosum	Bronchial Asthma Diabetes Mellitus	38	F			X	None
16	Rheumatoid Arthritis	Allergic Rhinitis	62	F	X			Cushingnoid appearance after 9 months.
17	Acute Laryngitis	Allergic Rhinitis	34	F	X			None
21	Allergic Rhinitis	Bronchial Asthma	33	F			X	None

It was given at the same interval in four patients and given more frequently in one patient. The four patients who were given the medication on the same schedule were all on a 12-hour dose schedule with both the old and new medication. Thus, 12 of the 13 patients were maintained with a single or twice daily dose of the medication.

A comparison of the total amount of steroid necessary was obtained in the 13 patients mentioned. The amount of steroid (as methylprednisolone equivalents) was the same in three patients, more in one patient and less in nine patients.

A few representative case histories are included to demonstrate the response to the medication. Two of these are from the bronchial asthma group and one from the miscellaneous group.

Case 4 — M.S., 55 yr. old white female, secretary, unwed. A lifetime history of bronchial asthma and allergic rhinitis with a marked degree of irreversible pulmonary emphysema. Lives and works in a heavy smog belt. Does not require steroids except in dense smog as other-

TABLE IV

Comparison of Frequency and Amount of Medication
(15 asthmatic patients)

Patient No.	Prior Corticosteroid Therapy Amount (expressed as methylprednisolone equivalents)	Methylprednisolone Modules 4 mgms. Capsules Amount in milligrams per day	Results	
			Superior	Inferior
1	4-8 mgm. h.s. and prn. during day.	One capsule h.s. occasionally one capsule in a.m. if smoggy.	X	
2	.4 mgm. b.i.d.	One capsule b.i.d.		X
3	None	One capsule b.i.d.	X	
4	4 mgm. q. 4 h.	4 mgm. q. 12 hrs.	X	
5	4 mgm. q.i.d.	4 mgm. b.i.d.	X	
7	4 mgm. q.i.d.	4 mgm. b.i.d.	X	
8	4 mgm. b.i.d. (p.c. supper & 3 a.m.)	4 mgm. p.c. supper	X	
9	4 mgm. daily p.c. supper	4 mgm. b.i.d. or more		X
10	4 mgm. at intervals	4 mgm. h.s. or b.i.d.		X*
11	4 mgm. 1 to 4 times daily	4 mgm. a.m. or b.i.d.	X	
12	Not specified	4 mgm. p.c. supper	X	
15	4 mgm. b.i.d.	4 mgm. b.i.d.		X
18	4 mgm. q.i.d.	4 mgm. b.i.d.	X	
19	4 mgm. b.i.d.	4 mgm. b.i.d.		X
20	4 mgm. t.i.d. or q.i.d.	4 mgm. h.s.	X	

*This patient got relief but had headaches - this experience was also true with prednisone and prednisolone.

wise responsive to routine immunologic care. A 4 mgm. Medrol Medule lasts 12 hours as compared to 5 mgm. of prednisolone given at a four-hour interval for the same total relief of dyspnea and cough.

Case 5 — F.N., 31 yr. old white female office worker with a 15-year history of uncontrolled bronchial asthma, peripheral segmental and bilateral bronchiectasis with recurrent infection of anerobic organisms. Routine anti-allergic management gives relief in the absence of infection without any symptomatic medication. When infections appear or smog is dense in working area extreme dyspnea occurs. Patient is exquisitely sensitive to iodides and routine bronchodilators are of little value. Response is good to all steroids tried at these intervals but prednisolone must be given in 5 mgm. doses four times a day or dexamethasone 0.75 mgm. four times a day for adequate relief. Medrol Medules 4 mgm. P.C. breakfast and supper give better results on a much lower steroid intake and without the rounding of facial contours obtained with prednisolone and dexamethasone in the doses required. The Medrol is rarely used for more than four weeks at a time and usually only for a week or two until antibiotics cure the infection or for a day or two during severe smog conditions.

Case 16 — M.G., 63-year-old white female housewife with crippling rheumatoid arthritis and allergic rhinitis who lives in the middle-western section of the U.S. Had been on prednisone and prednisolone for three years by her rheumatologist and developed a great deal of water retention, joint fluid and marked spontaneous subcutaneous hemorrhages. She was switched to dexamethasone with less relief and equal amount of hemorrhage. For nine months she has been on Medrol Medules 4 mgm. q a.m. and 4 mgm. H.S. except in very cold weather when an additional 4 mgm. are required P.C. lunch. Relief is excellent, water retention is less, little subcutaneous hemorrhage has occurred and only in the past three months but there is a marked buffalo appearance of the head and shoulders. The patient herself prefers the Medule to all prior steroids. Without steroids she becomes a total invalid as all spinal, all major and minor extremity articulations are involved in her disease. Fluid still develops in the knees but to a lesser extent than on the other steroids.

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Editorial Comment: A well-written paper with essentially one major point established, i.e., patient relief can be obtained with lower dosage of steroid when used in the coated granule form.

In rising hospital costs, the major factor is increased payroll. The higher payroll results from the increased number of personnel, the increased skills of the personnel, and improved personnel policies such as shortened workweek, higher salary levels, and health and retirement benefits.

Payroll accounts for two-thirds of total hospital costs, compared to one-third for industry. But unlike industry, the hospital must be ready to function 24 hours a day, 365 days a year. And the hospital cannot automate, except behind the scenes. Direct patient care is a personal service, to meet the individual human need.

(American Hospital Association)

Arizona Medical Association Reports

The President's Page

The Arizona Physician And An Arizona Medical School

Lindsay E. Beaton, M.D.

Lindsay E. Beaton, M.D.

The Chinese impart character to each new year by giving it a zoological name. Perhaps the doctors of Arizona could similarly designate 1960. In spite of the temptation raised by the political season, it might be scurrilous to call this, "The Year of the Chameleon." An acceptable analogue, however, would be "The Year of the School," for we may well remember it for whatever decision is made about a medical college for our State. By the summer of 1961, the Arizona Medical School Study, authorized by the Board of Regents of the university system and supported by the Commonwealth Fund, will give the citizenry a recommendation for the prospect of medical education in the state. As the rumors inevitably propagate and the decree is impatiently anticipated this may seem like another fifteen month "Year of Confusion," repeating 46 B.C., when Caesar juggled time in introducing the Julian calendar. But by the end of it one can with confidence expect a definite resolution of doubt and a final answer to a question vital both to education and to medicine.

Arizona physicians are not alone in their travail of speculation and waiting; men in other states are sharing the experience. New medical institutions are appearing at an accelerating rate. Twelve four-year schools have been organized since 1943, seven of them entirely new. A four-year school is being activated at the University of Kentucky, and the West Virginia University School of Medicine is in the process of conversion from a two-year to a four-year college. The Kellogg Foundation has given New Mexico funds for a two-year school, and others may well be in the offing. In addition to Arizona, eight other states are currently considering schools to meet coming shortages of physicians in their regions. California, New Mexico, Texas, and the twin city area in Minnesota, have already completed preliminary studies of medical needs and have taken the first steps toward implementation of plans made in consequence. Idaho, Hawaii, Montana, and the Long Island area of

New York, like our State, are broaching investigations of the advisability of medical institutions. To maintain the present ratio of one physician to 750 individuals of population, it is variously estimated that from 20 to 31 additional schools must be created by 1970. If this is a race against time, others are in it with us.

This year is also a twofold opportunity for the physicians of Arizona. First of all, as will be described, they will play a contributing role in the medical school evaluation and will enjoy a chance to leave their mark on its determinations. Equally they have an occasion for learning a great deal about modern medical pedagogy, particularly through contact with the study's national advisory committee. As a thorough and comprehensive text to accompany the course, no better can be recommended than the Proceedings of the 56th Annual Congress on Medical Education and Licensure. This meeting was held in Chicago, February 7 through February 9, 1960, under the auspices of The Council on Medical Education and Hospitals of The American Medical Association and has been published in the July 23 and July 30, 1960, issues of The Journal of the American Medical Association.

The Arizona Medical Association (ARMA) is proud of its part in launching the current inquiry into the practicability of an Arizona medical college. In 1958, the Association, during the administration of President W. R. Manning, was the first to insist on the indispensability of an independent evaluation of the need for and feasibility of a school in this State. ARMA called for the suspension of judgment on the type and site of a school until an objective examination had been put on the record, and it demanded that the verdict come from experts in the field of medical education and not rest on the testimony of local persuasiveness and pressure. Last year under the leadership of President Dermont W. Melick, ARMA sponsored at its annual meeting a conference that featured some of the leading authorities in the country. The published symposium was widely distributed and elicited gratifying compliment from quarters of knowledgeable opinion. In view of this past activity of the Association, it is obvious that we will wish to continue our sponsorship of independent investigation, our impartial posture with regard to decision as to type or place of school, and our wholehearted cooperation with the specialists chosen to carry out the project.

The Arizona Medical School Study, which is the official title, has been instituted by the Board of Regents of the university system and most generously underwritten by the Commonwealth Fund. A brief introduction to the personnel of the Study and a description of its program should be informative to every member.

The director is Dr. Joseph F. Volker, who is on leave from the University of Alabama Medical Center, where he is Director of Research and Graduate Studies. Dr. Volker is a dentist and a chemist. He received his dental degree from Indiana University and his M.S. and Ph.D. in bio-chemistry from the University of Rochester. The list of honors in his curriculum vitae is too long for recapitulation, but it gives some comforting idea of his experience to know that he has been Dean of the Dental School at Tufts College, Dean of the Dental School at the University of Alabama, a special advisor to UNRA, to the State Department, and to the Jamaican Government, and Consultant to the Board of Regents of the University of Colorado in planning the dental school at that institution. He has been President of the International Association for Dental Research, Chairman of the Training Grants Committee of the National Institutes of Health, a member of the Board of Overseers of Harvard College, and a member of the Dental Advisory Committee of the W. K. Kellogg Foundation. His credentials are impeccable, and those of us who have already had the pleasure of working contact with him are convinced that the man himself even surpasses this impressive advance billing. We are pleased with Dr. Volker's patent wish to keep the Arizona Medical Association informed of the phase progress of the study and with his equal desire to work in close liaison with the physicians of the state. There is every reason to believe that our voice will be heard and heeded. Furthermore, Dr. Volker is well aware of the technical and practical problems of such an investigation, including the aspect of legislative indorsement, and the proficiency gained in conducting previous inquiries is going to stand the State of Arizona in good stead.

Dr. Volker's first assistant is Dr. John B. Dunbar, also a dentist, with an intriguing brace of degrees in philosophy and in public health. He is trained in the area of professional education and was consultant to the University of Kentucky Medical School in the organization of

its dental school. From first hand observation, Dr. Dunbar is an effective and competent individual, whom we are happy to have involved in our affairs.

The staff of the Arizona Medical School Study will additionally include a statistician, an economist and other professional persons. Dr. Volker has already obtained through the Presidents of the two Arizona universities the collaboration of their Business Bureaus, and graduate students are being employed for the collection and analysis of data. Contact has likewise been made with major local banks to enlist the assistance of their economic departments.

Finally, three major committees are nuclear in the study. The first of these is a national advisory committee made up of university administrators, medical school deans, leaders in allied scientific fields, and men with familiarity with the great foundations. The members of this group have already been announced in the press, and the roster includes some of the most distinguished names in the field of professional education in this country. The citizens and doctors of Arizona can be assured that they will get seasoned and matchless counsel from men of this caliber. The second committee is a citizens delegation, which will be appointed by the Board of Regents. It presumably will include legislators, public school educators, professionals from the allied health fields and health agencies, and representatives of Chambers of Commerce, labor unions, key industries, civic clubs, churches, ethnic groups, social agencies, voluntary hospitals, etc. It will constitute a general forum through which the public can be kept accurately informed and can make known its expectations and preferences. Third, there is the Arizona Medical Association's Medical School Committee, appointed by our Board of Directors and then ratified by the Board of Regents. The committee consists of the President and Drs. W. Albert Brewer, W. R. Manning, Dermont W. Melick, and Clarence L. Robbins, with Drs. Leslie B. Smith and L. A. Stapley members ex-officio as the President-Elect and Secretary respectively of the Association. Dr. Volker promises that the ARMA committee will have intimate and regular contract with the national advisory group, and by the time this article has appeared, the first joint meeting of the two will have been held. Our committee has already had a preliminary conference for orientation with Dr. Volker and Dr. Dunbar. It is clear that through this representation organized medicine in Arizona will have an appropriately substantial influence on the Medical School Study.

The doctors of this State cannot, of course, buy a pig in a poke, no matter how hungrily they may await the pig, and no matter how elegant the poke. However, they have fathered this project, and it would have directly to contravene their desires to elicit their disapproval. The physicians and the citizens of Arizona can be assured, I think without question, that Dr. Volker and his associates will come up with a definite recommendation, and there is every likelihood that it will be one that the Association can second. It is also fair to predict that the formal proposal will be at once practical and forward-looking and that it will serve well the needs of health in Arizona. All this is said without any presumption of trying to forecast the results of the evaluation; its concrete injunctions are locked in the future. I only offer assurance that the organization of the study and the people who are conducting it guarantee a superior job and a thoughtful result.

A quick survey of the quandary of medical education in our country today may be helpful in setting the stage for discussion in the months ahead of Arizona's medical school problem. That the rapidly mounting population of the United States entails a need for an increasing number of qualified physicians is not open to serious argument, no matter what dispute there may be about the numbers that will be required. A generally accepted estimate is that in the next ten to twenty years the annual output of doctors must be augmented by 35 to 40 per cent. This would mean that some 10,000 physicians would have to be graduated each year as opposed to the 7,000 now being graduated. The report of the Surgeon General's Consultant Group on Medical Education (Public Health Service, October 1959) indicates that not all of these graduates can be provided by existing schools. It calculates that by 1975 this rate of growth in the physician population, which it believes is a conservative figure, would demand the yield of 20 to 24 new two year and four year medical colleges. If present institutions cannot expand their classes without impairing training, the necessary reinforcement will amount to some 30 new schools. To compound the predicament,

it takes at least three years to conceive, build, and inaugurate a medical college, and there is a lag of five more years before the first graduates start practice. Finally, while this is not the place to discuss the economics of the emergency, a medical school costs ten to fifty million dollars, and, with new installations being almost entirely State-supported, legislatures are understandably placed on the hottest of political seats.

At the same time that the need for physicians is growing, applications to medical schools are shrinking. The number of students applying to the nation's medical colleges has dropped for the third consecutive year, although acceptances have increased slightly during the same period. In 1959, 14,951 young men and women applied, compared to 15,170 in 1958 and 15,791 in 1957. The number accepted has risen by some three per cent since 1956, according to statistics compiled by the Basic Research Division of the Association of American Medical Colleges. At the present time about one-half of all applicants are admitted, although there is great variation in this ratio from school to school. The recreasing interest in the profession inevitably occasions a lowered caliber of those admitted to the freshman class. The deans of medical schools are at least privately well aware that the old days of taking only the straight "A" student are over. Any graduate of an acceptable college with a "B" average can now be sure of admission. Diminution in the academic quality of the students comes at a time when the volume and the intellectual content of the medical school curriculum are multiplying in almost geometric progression. One cannot help but commiserate with today's medical postulant.

Speculation is always irresistible, and there would seem to be a number of imaginable reasons for the decline in applications to medical schools and the more moderate average capacity of the applicants. It seems clear, first of all, that medicine no longer enjoys the exclusive "glamour" status it once shared only with the law. Other scientific groups, such as the nuclear physicists, the missile engineers, the industrial chemists, have become the heroes of our culture. An even darker part of this picture is the fact that the physician's image in the eyes of his fellow citizens has deteriorated for reasons that the author has discussed in the June issue of this journal, and he is therefore a less compelling model for the young. A second factor in the ebbing attractiveness of medicine may be the relative decline in the doctor's economic position. Men in other fields can earn as much with far shorter education and become financially productive at an earlier phase in their professional lives. Scholarships and fellowships in the physical and biological sciences are readily available from the great philanthropic funds, from the Federal Government, and from such institutions as the National Science Foundation. Support is given throughout the Ph.D. program and is quite adequate, in contrast to the plight of the medical student, who gets no stipend during his four years of medical education. When the Ph.D. finishes his preparation, his opportunities are as challenging as those of the M.D., his pay and security are as satisfactory, and community respect for his discipline is as high or higher. The end of the G.I. Bill may contribute to the problem, by making fewer young men able to sustain the expense of the long years of medical study. Finally, the threat of bureaucratic control of practice may discourage some from entering a vocation that has been thought exceptional in being governed only by professional standards and individual merit. Under these present conditions medicine cannot compete for a majority of the top young brains of the country, and it is manifest that prompt alterations must be made in the entire medical stage if the public health is to be sustained at a high level.

Both of the major political parties in their platforms in this election year recognized the need for assistance to medical education, though they varied in their approach. The Republican platform pledged "continued Federal support for a sound research program aimed at both the prevention and cure of diseases and intensified efforts to secure prompt and effective application of the results of research." It further promised "federal help in new programs to build schools of medicine, dentistry, public health and nursing and to provide financial aid to students in those fields." The Democratic platform stated, "To ease the growing stortage of doctors and other medical personnel we propose federal aid for constructing, expanding and modernizing schools of medicine, nursing and public health. We are deeply concerned at the high cost of medical education in putting this profession beyond the means of most American families. We will provide scholarships and other

assistance to break through the financial barriers to medical education."

In addition to the real enigma of recruitment of the proper kind and number of students, the whole sphere of medical education is in ferment. When Arizona's doctors come to judge the Arizona Medical School Study, they must realize that there have been changes in the techniques and format of medical pedagogy since most of us were in medical school. Understanding of these innovations will advance the adjustments and reconciliations that will be necessary in our thinking. The foremost difference is the strengthening of the tie of medical education to general university education. There is nothing new, of course, about the location of medical colleges in universities; the professional faculties were integral parts of medieval European universities. In modern times, however, medical schools have often been relatively autonomous. There is now a definite return to the former intimate relationship between general and professional education, which has effectually put control of medical teaching in the hands of universities. Along with this evolution has gone a transfer of general superintendence over medical education from the American Medical Association to the medical schools, which essentially now means direction by the universities. As one reads the Proceedings of the 56th Annual Congress on Medical Education and Licensure, this fact is taken for granted throughout. In that report, Dr. H. Stanley Bennett, Chairman of the Department of Anatomy at the University of Washington School of Medicine says, "We can look with pride at the past and with sober determination at the future of medical sciences as university disciplines." And that puts it in an academic nutshell.

The enormous expansion of American universities in response to the educational needs of an increasing population, the G. I. Bill, and other economic factors probably account partly for this academic preemption of the field of medical teaching. The mounting cost of medical education and research has made the university the only feasible cost of medical education and research has made the university the only feasible place to undertake these functions, but in addition to economic explanations there are intellectual and instructional reasons. The deepening significance of the basic sciences both in the practical indoctrination of the physician and in the development of medical knowledge has necessitated the supplementation of the therapeutic team by many non-medical professionals, from mathematicians to social workers. These people can work effectively only in a university setting, where they have access to university facilities and where they can meet their need for consultation with other university scientists, the professors of the physical and biological science departments, and the men in the departments of sociology, psychology, and cultural anthropology. It must be recognized that not only is contact needed with the natural scientists but equally with the social scientists, who have a seminal office in the deciphering of mental disease and in the broad area of human ecology, aspects of medical understanding that are probably just as vital as of increased biophysical knowledge.

Equal in degree have been the shifts in the medical curriculum. There has been less and less time spent on the venerable pillars of medical education of twenty-five years ago, such as anatomy and embryology. These traditional courses have had to be curtailed to make place for new scientific learning, particularly that of a biophysical and biochemical nature. Nuclear medicine, medical physics, and newly sophisticated medical biological knowledge have shouldered out some of the old observational disciplines. So salient is the importance of biophysics in today's medical comprehension that it has been said that modern medicine is basically electronics. At the same time there is spreading insight into functional disease, so that a place must be made in the curriculum for the mental health sciences, rehabilitation, behavioral studies, geriatric medicine, and sociological medicine. The educator faces a paradox, the need to train the medical student on one hand to be an adept biological psysicist and chemist and on the other to have a breadth of cultural and psychological perception that will enable him to penetrate all aspects of psychological illness. Along with electronics goes an awareness of patients as individual human beings, and the medical colleges are reacting by various types of the so-called "vertical curriculum," as opposed to the horizontally stratified subjects of medical education thirty years ago. Students begin their clinical studies as freshmen and carry them throughout the four years

in company with the basic sciences. The vertical curriculum is by no means as yet endorsed all over the country, but it is an experiment that must be taken into serious account by anyone thinking of curricular system for a new medical school. At the very least it is a concept that is enriching medical pedagogy, no matter how much individual institutions may remain to some extent loyal to the conformation of medical education made authoritative by the recommendations of the Flexner report in 1910. There are other new approaches, like the five-year combined medical school course, which selected students may enter after only two years of undergraduate work as in varying schemes being tried at Stanford, Northwestern, Vermont, and Johns Hopkins, or the many types of integrated teaching programs utilizing multidisciplinary liaison.

Finally, a change in the design of medical education has been brought about by the medical center pattern. It has become evident that the only efficient way to teach young doctors is in a concentrated and inclusive physical plant. One has only to visit such facilities to recognize how complex they are, how large they are, and how expensive they are. In fact, the actual amount of space required becomes a matter of practical importance. The University of Alabama Medical Center very quickly expanded from a single square city block to fifteen square city blocks. An institution of this intricacy must have a large staff. Perhaps the most critical deficiency facing medical education today is the shortage of teachers, particularly in the basic sciences. The concensus is that scientific medical instruction must primarily be managed by a full-time faculty, even in the clinical departments, although the part time practitioner-teacher will always have his place. The medical center also demands specialized hospital construction, and the community that has accepted an existing hospital as the nucleus for a medical school has usually lamented the decision. The ordinary community hospital does not have the classrooms, the examination cubicles, or the clinic demonstration amphitheaters needed for teaching, nor does it possess investigative laboratories in close proximity to patients. A modern medical center must contain areas for student research. There has been rapid increase in student participation in research; in some medical schools as high as fifty per cent of the undergraduate body may be involved. This emphasis on investigative training for the future physician obviously implies a hospital of very special arrangement.

There are a number of challenges to understanding that face the physicians of Arizona as they consider the possible introduction of a medical school. One is the altering status of the academic scientist, be he a medical scientist, social scientist, or physical scientst. There are at present some 10,350 full time teachers in medical schools, approximately one-ninth of the teachers of science in this country in universities, colleges, and junior colleges, and approximately one-twenty-fifth of all of the teachers in this country in higher education. The academic medical scientist is fairing well economically, considerably better than his colleagues in the humanities and social studies, for reasons that need not be here discussed. Particularly, the salaries of the professors in the clinical subjects in medical colleges have been raised until they are substantially higher than those of the other university faculties, even those of the faculties of the natural sciences. In a few schools, such as Johns Hopkins, strenuous efforts have been made to correct the inequity between the income of the professor in the basic sciences and that of the professor of clinical subjects. In addition to an enhanced economic position the academic scientist is now often presiding over departments of considerable scope and importance, which enjoy the standing that inevitably accompanies the expenditure of large amounts of money. Thirdly, the university scientist, medical or otherwis, is no longer an ivory tower dweller but a man commanding definite connections with the outside world of government and commerce, with the distinction and rank conferred by his professorial title and public deference for the originator of research. The academic medical scientist is more likely than his brother in private practice to be involved in political concerns at a level that gives his individual opinion significant weight. The practicing physician must realize that the medical school professor has a new autonomy and independence, with at least equal influence and eminence.

There are certain definite areas of conflict between physicians who work in a medical school and those who are in private practice, and not the least of these is a difference in socio-economic outlook. Political scientists tell us that

there has been a recent tendency for the white collar, professional, and well-to-do classes generally to become more clearly identified with a conservative political allegiance, while organized labor, various minorities, and certain intellectual groups are more likely to be "liberal." These intellectual groups, observers agree, include the academic scientists, among them many medical academic scientists. This contrast in politicio-economic orientation becomes potentially divisive at a time when organized medicine believes that it must fight for its continued existence against social schemes advanced by admittedly responsible national bodies, and tolerance is needed on both sides. Finally, the academic medical scientist has become the expert in medical education, and he will not lightly accept challenge to his views on the subject by men in practice. Little will be gained by quixotic jousting with our brethren who have devoted themselves to this aspect of our common profession, an aspect where we have little current expertise.

One of the acknowledged crises that has often arisen in cities where new medical schools have been established has been that of the private practice of the full time medical teacher. The problem centers on whether he should be allowed to compete with the practitioner in town by maintaining a private practice in addition to teaching duties. Often the competition seems unfair because of the reputation lent by professional prestige. Communities where medical schools become located may regard the professor of surgery or medicine as the Olympian source of final opinion, to the detriment of the private man. Attempts to solve this real dilemma have not been entirely satisfactory. No one can deny the necessity for patient treatment in medical schools. As Arthur Richardson, Dean of the Emory University School of Medicine succinctly put it in his address before the 56th Annual Congress on Medical education and Licensure, "Medical service in the form of taking responsibility for the care of patients is a necessary function of the modern school in order to create the proper environment for the teaching of clinical medicine." Throughout the speeches before that Congress one detects the implicit belief that the university hospital is the best and must be the best that medicine has to offer. There is probably room for dissent, but this is the faith of our colleagues in education. One can only applaud their insistence that the medical management afforded as an example for doctors in embryo should unequalled, even though physicians outside.of university circles have an equal desire for the highest quality of medical service.

Another very important question that becomes posed with new bearing when one seriously contemplates instituting a medical school is federal aid to education. The current stand of the American Medical Association may briefly be stated as an acknowledgement of a need for assistance in the expansion, construction, and remodeling of the physical facilities of medical schools sufficient to justify a one-time expenditure of federal funds on a matching basis. The AMA further exacts a program so structured as to insure the maximum freedom of the recipient schools from control by Washington. The House of Delegates of the AMA in 1951 passed a resolution that no part of funds provided by the Government should be used in any manner for operational expenses or salaries, and this stand is still the official policy of the AMA. With all due respect to our national leadership, one may dispute the realism of this stand. It is ironically clear that much of medical education today rests on federal support, even though that support is not straightforward but rather arrives in an indirect fashion through the channel of research. Both the AMA and the Congress piously object to any frank aid to medical education, but no one dares oppose any grant made in the name of investigation. Governmental research appropriations have without question helped to meet academic salaries in spite of the sanctimonious refusal even to admit the need. In a recent publication, Herbert H. Rosenberg of the National Institutes of Health, points out that the grants of that agency now comprise almost thirty per cent of all federal research expenditures in academic institutions. Through the use alone of support of basic science research fellowships and traineeships medical education is substantially underwritten by Washington, and recently similar assistance has been extended to the clinical side. Probably if federal aid were suddenly withdrawn today about sixty per cent of the activities of the nation's medical schools would come to an immediate and complete halt. The universities cannot be expected to rebuff such succor, and their utter dependence for research development on governmental aid is now firmly established. In comparison, the

money given the medical college, by AMEF is hardly more than a helpful drop in the bucket. This constitutes a substantial divergence from what most practicing physicians think about the question of federal aid to education, and the disagreement is another illustration of the way in which medical education has become so firmly a university responsibility and has been so largely removed from the effective guidance of the American Medical Association. If the members of ARMA are to participate in medical education in our state, they must face modern reality and not pine to restore the school of thirty years ago.

This is certainly not to deny the dangers in federal dominion over medical investigation and medical education. The AMA has very properly and very strongly pointed out the necessity of institutions controlling their own research destinies, with the right to pursue projects which may not possess public appeal. The AMA proposes that the use of project grants has already limited the discretion of medical schools to follow new avenues of investigation. As in other fields of research, government support is often earmarked for programs that will be of immediate "practical" use, while more significant basic work is starved.

A most provocative analysis of the perils that accompany government patronage has been published in a recent report of the Academic Freedom Committee of the American Civil Liberties Union, which posed itself the question: "Is it in the interest of society to permit the universities to lose a large measure of their authority in shaping the development of their own affairs?" The ACLU Committee found itself concerned with the limitation of freedom of investigation through the application of government security procedures, the unequal distribution of funds so that important areas of scholarship were overlooked, the neglect of individualistic nondirected research in favor of so-called programmatic research, and the fact that the bulk of grants is alloted to institutions with outstanding names. This last works to the detriment of new schools who are coming up the scholastic ladder and thus curtails the opportunities of younger and less well-known scientists who may actually be more likely to be fruitfully original. The committee says, "It must be clearly recognized that if outside financing of university research and graduate education, particularly in the natural sciences, continues to follow present patterns, it will inevitably lead to a very serious erosion of university control of university activities. We should face squarely the question as to whether we are prepared to break with the long-established tradition which entrusts to universities the large measure of automony in their proper functions of educational research – whether we are prepared to replace a significant fraction of this automony by a patchwork control exerted by a variety of bureaus with widely differing aims and interests."

There is also the threat that research people in the universities become so encumbered with specific project work that they neglect both their teaching responsibilties and imaginative inquiries of their own. This consequence might in the long run be a real injury to the national interest. Probably the entire enigma should be pondered by some outside authority, perhaps through one of the major foundations.

Whatever our doubts, for the moment the reality of federal sustenance of medical research confronts us, and while we battle to hold bureaucratic control of medical education at a minimum, we would not wish to see the volume and quality of that training reduced by the withdrawal of federal funds for scholarly investigation. The issue ahead is the advisability of the extension of such aid in the shape of student stipends, faculty salaries, and funds for operating expenses. It must be conceded that medical education and medical research are national missions and that they must be nutured through a national effort. This has been put forcefully by John C. Weaver, Dean of the Graduate College and Research Administrator of the University of Nebraska in a recent publication where he says, "The costs of achieving a healthy and a necessarily massive growth of the facilities of higher education transcend both the available resources and interests of any single state or local community." And he goes on with what may seem like heresy to some, "Federal aid to education is here, and clearly here to stay. Neither theoretically nor practically is there anything wrong with the basic concept of federal aid to higher education; indeed, it has become prerequisite to the future growth and attainment of higher education. It is providing the direct support for a major proportion of research of the

faculty. Federal funds also provide much of the expensive equipment and some of the physical facilities which the university would presumably have no other way of obtaining."

This panorama of modern medical education may make the practicing physician feel that he no longer can have much part in it. We hope he is wrong. Ideally medicine is one house, in which there is work for men of many talents and specialties, of which the practicing physician and the medical educator are merely two. The private doctor will not serve the profession well by blind opposition or by abdication from the responsibility of training his successors. If he will acknowledge the changes in the medical education and go half the way in generous cooperation, he will probably find that he retains the position of practical mentor for the apprentice. This is one of the joys of medicine, and part of our counsel to the Arizona Medical Society Study will be to offer the service and claim the privilege.

First of all, one trusts that an honored place will remain for volunteer teaching by private physicians in the medical school. It is substantially agreed that the educational staff must be largely full-time. There is still an indispensable place for the man in private medicine. Unless there is to be some enormous and unforseeable mutation in the nature of practice in this country, most of the graduates of our medical schools are going out into private practice. In schools staffed only by full-time men, students are very likely to see only hospital patients. Any private doctor, with the possible exception of the surgical specialists, knows that the major portion of his care of patients is not carried out in the hospital. The volunteer physician teacher can serve to correct the misapprehensions raised by pure hospital training under men with only hospital practices. Furthermore, he can instruct the novice in those psychological elements of therapy that govern the patient-physician relationship. Efforts are being pushed in medical schools to meet these concrete problems, but the man with the indispensable experience with people is the private practitioner.

It is of considerable interest that there is some expression of dissatisfaction, both by students and by graduate doctors, with certain aspects of modern medical education. Some large hospitals are again dreaming of founding their own schools. By all portents this would seem to be a minor counter-tendency, but it is one that cannot be totally shrugged off. More significant perhaps are the hospital residency programs, which at least in some parts of the country have lured personnel away from the university medical school residency programs, presumably by the practical tutorship offered or by certain outstanding physicians who are associated with hospitals and not with universities. The medical colleges are demanding, as heads of their departments, men of amazing qualifications. They must be very young and enormously experienced, unsurpassed clinicians and the authors of countless papers, willing members of the team and complete individuals, mature and able to "grow up with the school." These requirements rule out some of the most capable men in American medicine; it is comprehensible that young doctors will leave the universities to go under physicians of peerless competence who may not be of an age to grow up with the school. America is a pluralistic society, and pluralism in all educational fields has always been considered desirable. There is no reason why pluralism in medical education should not also be advantageous. But the major burden of medical teaching in the future will be carried in the universities under plans which are largely dictated by academic thinking. This is the fact that we must bear in mind as we attempt to contribute our bit to the study now under way in Arizona.

There are other avenues by which the practicing physicians of Arizona can promote medical education. The recruitment of young men into the profession, for instance, probably largely depends on the example and influence of the private doctor. This Association through its Benevolent and Loan Fund will help young persons to finance a medical education. Through its careers program it intends actively to enlist disciples for what is to us the most rewarding way of life that a man can have. I would gently suggest that this is not to be done by extending reassurances of economic success and social standing but rather by emphasizing the intellectual delights and emotional gratifications of being a physician. Above all it is by precept that the physician will convince young men and women. As I have said in another place, the physician must again become a respected model to be copied and emulated and must annul his present false public image as a money-minded

business man.

There are other chores for us. We can insist that the payment of house officers in our hospitals be more reasonable. We can always be on the alert to fight the detractors of medicine. We should do everything that we can to insure that when a medical school is established there is no destructive antagonism between medical teachers and private medical practitioners. We must defend the great body of medicine against private medical practitioners. We must defend the great body of medicine against those who picture educators as socialists and who scorn the scientific medicine they are trying to teach. We must champion a strong medical faculty and not denigrate it. And finally we can exert our great leverage to avoid state chauvinism in medical education. Virtually all state supported schools enroll 90% of their classes from state residents. If Arizona is to have a great medical school, it must not be one that insists that only Arizonans will be taught in it.

One can conjecture that die has probably been cast for the real option about a medical school in Arizona. The question is probably not whether we will have a school but when and where and of what kind. This is the only State with a population of a million or over without a four year medical school. It is a State that is growing rapidly in all dimensions. It will inevitably some day require a medical school. So far as the doctors of Arizona are concerned, the decision about a medical school is like the decision about any other medical matter: it is to be reached on the single ground of the health of the public. A determination about a medical college should not be made because of the ambitions of university presidents, university faculties, or university boards for expansion and the status that goes with a professional school. It should not be settled on the grounds of civic pride, and it should not result from the desires of the great foundations to spend their funds in spectacular fashion. On the other hand, the decision must not rest with the vested interests of the physicians of a given locality or with the aspirations of specific educational institutions or with the resistances of large taxpayers. So far as we are concerned only one thing is relevant: what will enhance the health of the citizens of Arizona.

The members of this Association have a chance to set a real example of cooperation, of unity of purpose and action between medical education and practicing physicians. There is no time for this cooperation to start like now, and it will first consist of understanding of the problems of the Arizona Medical School Study, as outlined in these pages. Our profession depends for its future on constantly progressive medical education, and it is therefore properly our concern. No profession can divorce itself from accountability for the system and content of the training of its members. Ward Darley, head of the Association of American Medical Colleges has called the current crisis in medical education "the most serious that medical education has faced since the Flexner report" fifty years ago. It is a crisis that we in Arizona can do our full part to dispel.

PROFESSIONAL COMMITTEE

Meeting of the Professional Committee of The Arizona Medical Association, Inc., held Sunday, August 28, 1960, John R. Schwartzmann, M.D., Chairman, presiding.

SUBCOMMITTEE REPORTS

Aging

Written report of Samuel J. Grauman, M.D., was presented with summation for the Professional Committee's information on the health of the aged as it becomes a national, state and local problem. This report is in complete detail at the present time and is being forwarded to the Board of Directors of this Association for its consideration, and essentially reiterates the stand that has been recommended many times by this Committee. Considerable support for the Professional Committee's position and recommendations in the past are tabulated in this report.

It is the resolution of the Professional Committee that the essence and substance of this report be referred on to the public Relations

Committee, through the Board of Directors, for information both to the members of this Association, through the State Journal, as well as such portions of the report as are deemed suitable by the Public Relations Committee to be brought out as the State Association's opinions and stand for publication in newspapers and lay periodicals throughout the State, as an educational program to eventually aid in attempting to administer, from the medical standpoint, the recently passed bill of Congress dealing with the health care of the aged, as it will eventually apply to the state groups. It is the further recommendation of the Committee that the Board of Directors consider apprising the Governor of the State and his Committee on the Problems of the Aging of this Association's philosophy and feelings with respect to the medical care of the aged and medical problems of the aging so that political administration thereof can be tempered by such information as we are able to offer.

It is to be noted that at the last meeting, a request for medical service in Youngtown, Arizona, was presented to this Committee. A request was made through liaison groups in the Maricopa County area to obtain information from the representatives of the Youngtown, Arizona, group. This investigation apparently has been withheld because of the vacation schedules of the members requested to undertake same and it is anticipated a report will be forthcoming for the next meeting of this Committee. A recommendation will then be made. It is to be noted again that in the future, when either inactivity on the part of appointees for such information or vacations interfere with obtaining such information, as was requested, the chairman of the Professional Committee requests that he be notified so that new appointees can be contacted and such information gained so that continuity of dispensing with working problems can be carried out at the subsequent meeting.

Cancer and Medical Education

Robert C. Leonard, M.D., for general information to the state Association, reported on the coming Cancer Seminar scheduled to be held in Tucson in January of 1961.

Attention was again directed to the defeat, about two years ago, by the Arizona State Legislature, of the recommendation for a state-wide cancer registry. This recommendation had been previously approved by the Professional Committee and by the Board of Directors. It is again directed that this be brought to the attention of the Board of Directors for consideration of this particular recommendation, if it so desires.

Regarding medical education problems, Doctor Leonard discussed one with respect to intern-resident services in the larger hospitals in the state. They face the problem of deficiencies in filling assignments on the house staffs with the requirement of ECFMG certification of all foreign medical school graduates. Doctor Leonard was directed by the Committee to detail an announcement to be forwarded to the hospitals involved in intern-resident appointments, referrable to the potential problem that will present itself in another few months if significant numbers of the foreign medical students fail to pass the examination scheduled for September next. This matter of information and warning might also be brought to the attention of the membership of the Association through its Journal or possibly it could best be pursued through direct communication with the county medical societies.

Civil Defense and Safety

Doctor Howard W. Kimball had no report.

General Medicine

Doctor Orin J. Farness was not present at this particular meeting. Doctor Lowell C. Wormley, a co-member on the General Medicine Committee, reports a communication from the Arizona Radiological Society referable to skin testing and preliminary determination of tolerance on the part of patients to many of the radio opaque contrast media used in diagnostic roentgenology. It was the conclusion of the Committee that Doctor Wormley refer this letter to the Research Council of AMA to gain adequate scientific information to justify this Committee's making any recommendation and answer to it as presented. This will be done by the time of the next meeting.

In addition to this, the Arizona State Board of Pharmacy has circulated all members of the medical profession with a statement of policy referable to permanency of non-narcotic prescriptions. This was gone over in some detail.

The national board recommends strongly approval of the statement of policy by the Arizona State Board of Pharmacy and recommends that the State Board of Pharmacy be apprised of the medical society's approval, urging that this become a permanent policy on the part of the Arizona State Board of Pharmacy.

Hospitals – Nursing

There was no report requiring action at this time.

Maternal and Child Health

In keeping with the item appearing in the last meeting minutes of this Committee, which was considered at the time by the Committee members to be relatively unimportant, the problem of "Enzylac" was again brought up. Doctor John S. Kruglick of Phoenix was present, along with Mr. Kenneth R. Mason, representing the American Seal-Kap Corporation, producers of the product "Enzylac." The entire problem brought to our attention by the AMA Division of Scientific Activities, Department of Foods and Drugs, pointing out the inaccurate advertising on the part of the "Enzylac" Company, was gone into in some detail. Doctor Kruglick presented a summary on "Enzylac," which he himself states he plans on publishing. A copy of this summary is on file and should be forwarded to the Board of Directors for its consideration; however, throughout the basic discussion at this meeting, it was the feeling of this Committee that it could only be entirely objective and, since information from the AMA was not adequate to either agree or disagree with Doctor Kruglick's presentation, the subcommittee chairman was instructed to contact the Department of Foods and Drugs of the AMA to gain factual information rebutting the alleged inaccurate advertising on the part of "Enzylac." This will be obtained by the time this Committee next meets and a specific recommendation in keeping with the memorandum from AMA will then be presented to the Board of Directors.

Doctor Johns stated that the Maternal and Child Health Committee has been furnished with a request by the AMA for maternal and child health statistics and studies in the matter of infant mortality. No such statistical study is adequately kept in this state and none that can be adequately evaluated is of record at this time. On the basis of Doctor Johns' report and his investigation, it is the recommendation of this Committee that the Board of Directors consider favorably action for instituting and aiding in the establishment of a survey on infant mortality for proper analytic studies by the State Medical Association. This study is to be carried out by the State Department of Health.

The following resolution was adopted:

WHEREAS, the infant mortality in Arizona leads the nation, and

WHEREAS, previous studies have helped reduce infant mortality, therefore

BE IT RESOLVED, that The Arizona Medical Association, Inc. set up a state-wide maternal and infant mortality committee to study each death within the State.

Doctor Johns offered to develop the format for such a program, with the assistance of the State Pediatric Society, State Obstetrics Society and State Department of Health, closely following the New Mexico plan, if the Board of Directors so desire.

Mental Health

Doctor Otto L. Bendheim discussed the problem presented by the Tucson Sunday Evening Forum referable to meeting scheduled to be held October 30, 1960, the speaker: Milton H. Erickson, M.D. (Phoenix); the subject: "Hypnosis." Following is the resolution of the subcommittee on Mental Health of this Professional Committee:

WHEREAS, the subject of hynosis has received increasing interest and publicity, and

WHEREAS, lay groups and organizations are seeking out informed opinions on the subject of hypnosis, and

WHEREAS, numerous unqualified speakers and self-styled experts have spread potentially dangerous and damaging misinformation on the subject, and

WHEREAS, such misinformation has led to misuse of hypnosis by professional and lay people, therefore,

LET IT BE RESOLVED, that the subcommittee on Mental Health of the Professional Committee of The Arizona Medical Association

be directed to act in a consulting capacity to those professional and lay groups seeking advice in the selection of qualified experts as speakers and/or instructors in the field of hypnosis, when requested.

It is directed that the content of this resolution be forwarded to the Board of Directors with the recommendation that it be approved; further, that the Pima County Medical Society be appraised of action recommended by this Committee with respect to its relationship to the Sunday Evening Forum in sponsoring and publicizing Doctor Erickson's performance there.

Rehabilitation — Industrial Health

There was no report requiring action by this Committee at this time. However, rehabilitation facilities, activities and services are being studied further by the subcommittee and information referable to the interest in vocational and industrial rehabilitation is being taken up by it for a subsequent report and recommendation to be indicated to the Board of Directors in the future.

Venereal Diseases

There was no report made, Doctor Paul J. Slosser not being present at this meeting.

COMMUNICATIONS

1960 Physician's Award

The only communication requiring consideration at this time was the memorandum from Doctor Lindsay E. Beaton, referable to The President's Committee on Employment of the Physically Handicapped — "1960 Physician's Award." It was the concensus of the Committee that there is no reasonable recommendation to be made in naming individuals from the State of Arizona for competing in this award at this time.

Medical Practice Acts

This completed the meeting. The members are directed to acquaint themselves with the Arizona State Medical Practice Act as well as with the Washington Medical Practice Act, all members of this Committee having copies thereof. This will be the major topic of discussion at the next meeting of this Committee.

Respectfully submitted,

Lorel A. Stapley, M.D.
Secretary

PUBLIC RELATIONS COMMITTEE

Meeting of the Public Relations Committee of The Arizona Medical Association, Inc., held September 11, 1960.

AMA PUBLIC RELATIONS INSTITUTE REPORT

A report of the Public Relations Institute held September 1 and 2, 1960, in the Drake Hotel, Chicago, Illinois, attended by Roy O. Young, M.D., Chairman and Paul R. Boykin, Assistant Executive Secretary, was reviewed in detail for the benefit of the members in attendance. The conclusions noted were that public relations are best originated, followed and completed by the doctor of medicine in his office with his patient. These suppositions are based upon fact that if the patient is completely satisfied with services rendered, for fees assigned thereto, that the dictates of his family physician will be followed through the psychological reasoning of personal satisfaction. Major problems confronting medicine today are thought to be based upon the rare unfortunate circumstances whereby a patient is dissatisfied with services rendered and fees charged associated therewith, where the lackadaisical attitude of the physicians' confreres in hearing the cause of the unhappy patient, and attempting to make available to him, without further cost, a satisfactory re-evaluation of his medical problem and his financial problem.

It was the further consensus that medicine should take an extremely active part in all local

functions, civic, fraternal, religious, political, etc., carrying the weight of experience, guiding the program during publicity, and letting the plaudits follow where they may.

Lengthy discussion ensued reviewing in detail the many facets of public relations both within and without the doctors' offices. Inasmuch as a quorum was not in attendance, it was agreed that Doctor Hileman (Southern District Director) would present to the Board of Directors at its next meeting the following conclusions reached for its further consideration:

1. Expore the possibilities of offering a "newcomer service" similar to that recently introduced by the First National Bank of Arizona, or possibly participate therein, or through the press-radio-television media to introduce Arizona

2. Develop a realistic "placement service" Medicine to the newly arrived people and assist them in the location of a doctor of medicine to serve family needs.
through this Committee to assist and encourage doctors of medicine to select a location of practice with emphasis on communities of need, arranging meetings with community representatives to explore and better understand their needs, displaying Medicine's interest and willingness to assist in their problems and be the medium of introducing a potential doctor of medicine and his wife interested in locating in the locality.

3. Initiate public relations programs wherever possible and through whatever media keeping the public informed of problems associated with the practice of medicine.

4. Keeping abreast of publicity as appears through whatever media and, in cooperation with such media sources, be prepared to immediately provide facts on a local or state level, if need be, endeavoring to set straight in the minds of the public the true "image of the doctor of medicine."

Respectfully submitted,

Lorel A. Stapley, M.D.

Secretary

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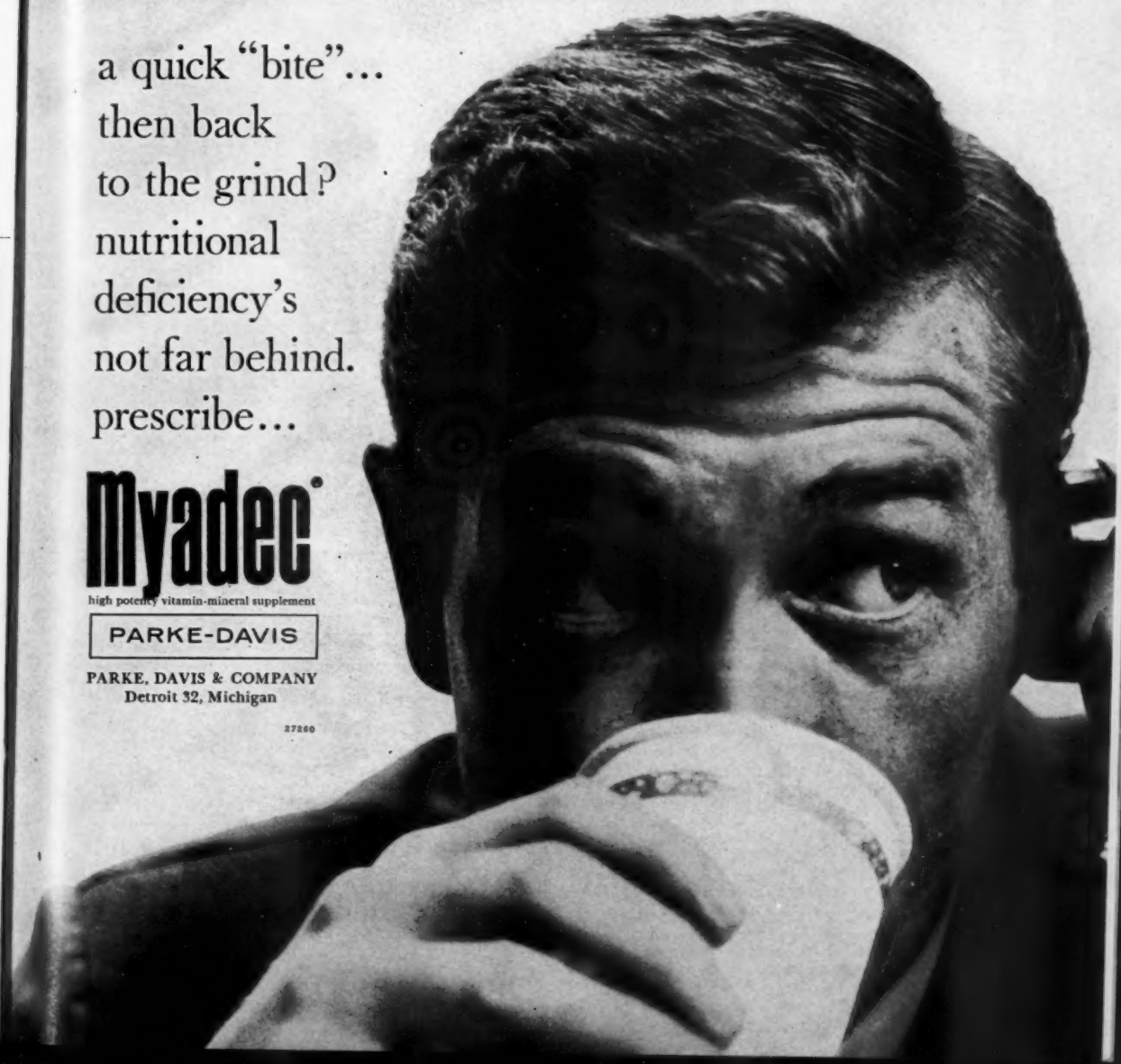

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Editorial

MEDICAL DETECTIVES ACT TO CUT INFANT DEATHS

A recent release from the American Medical Association outlines a campaign to mobilize state health departments, hospitals, obstetricians, pediatricians and general practitioners of the Rocky Mountain area in a nationwide program to reduce infant mortality. This medium was launched by the American Medical Association at a meeting in Denver's Hilton Hotel. The purpose of this meeting was to review and to put into working form the new A.M.A. "Guide for the Study of Perinatal Mortality and Morbidity" well in advance of the next baby boom, which is expected in the early 1970's when the large number of babies born during World War II reach maturity. Perinatal mortality is defined as "those deaths of fetuses and newborn infants occurring before, during, and soon after birth," while perinatal morbidity is defined as a pathological condition or conditions observed in the fetus or infant during the perinatal period.

The A.M.A. perinatal code sheet to be used is designed to be as simple to fill out as possible and still lend itself to modern statistical analytic methods. This form, as it is conceived and

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CONTRIBUTIONS

The Editor sincerely solicits contributions of scientific articles for publication in ARIZONA MEDICINE. All such contributions are greatly appreciated. All will be given equal consideration.

Certain general rules should be followed, however, and the Editor therefore respectfully submits the following suggestions to authors and contributors:

1. Follow the general rules of good English or Spanish, especially with regard to construction, diction, spelling and punctuation.
2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.
3. Be brief, even while being thorough and complete. Avoid unnecessary words.
4. Read and re-read the manuscript several times to correct it, especially for spelling and punctuation.
5. Manuscripts should be typewritten, double spaced, and the original and a carbon copy submitted.
6. Exclusive Publication — Articles are accepted for publication on condition that they are contributed solely to this Journal. Ordinarily contributors will be notified within 60 days if a manuscript is accepted for publication. Every effort will be made to return unused manuscripts.
7. Reprints will be supplied to the author at printing cost.

designed, would require very little effort on the part of the attending or delivering physician, and the attending physician or pediatrician of the baby. However, it will provide a wealth of material that is of extreme importance in the assessment of perinatal mortality and morbidity, a subject that has too long been neglected, particularly in the Southwest area. Some interest has been developed in the State of Arizona in this problem; and at one of the larger hospitals in Phoenix during the past three years, we have held annual conferences on the subject of perinatal mortality and morbidity, a joint meeting held with obstetricians and pediatricians in attendance. All of us interested in this problem have been, to put it mildly, shocked by the lack of information that is available to us in the assessment of causes of prenatal and neonatal deaths. I feel sure that every conscientious practitioner, obstetrician and pediatrician who has to do with the delivery and care of newborn infants will give this new program of the American Medical Association the utmost consideration and take the little time that is necessary to fill out the perinatal code sheet. This information will then be assessed at a later date at a regional center, and it is hoped that the tabulated data will serve to promote further study and research into problem areas that will become apparent to local committees utilizing the service.

R.F.W.

ARIZONA CLINICAL CONFERENCE

The clinicians of Arizona have an excellent opportunity to develop a mid-year clinical conference.

Elsewhere in this issue are carried the programs and faculties of two excellent meetings to be held in this state during January. The Heart Association and the Cancer Society are to be commended for the quality of programs they are producing.

There should be a coordination of these programs so that this excellent clinical material could be covered by all who desire. A single conference would eliminate the necessity for taking off from practice two long weekends within a period of a month.

D.W.N.

PROMOTE THE STUDY OF MEDICINE

As the years have passed since the termination of World War II, the number of students applying for vacancies in our medical schools has decreased. And in many instances the quality of the applicants is not of the desired level.

The Arizona Medical Association is sponsoring medical student programs in both Phoenix and Tucson to encourage more and capable students to enter the profession of medicine. The members of ARMA should attend and assist in these sessions to be held on the campus of both the U. of A. and A. S. U.

It would seem that this could be done with very little difficulty, for medicine certainly has the four prime requisites for a desirable profession: A well-qualified physician can contribute much to society; his work can be enjoyed; it receives professional recognition; and there is an adequate financial return.

D.W.N.

FALL-OUT SHELTERS — YES OR NO

Your attention is drawn to the report published by the Stanford Research Institute and the reprint by Robert B. Meyner. These two

viewpoints are in marked contrast.

Mr. Meyner's ideal goal would be the desirable one. However, the statements that he quotes as fact must either be in error or the Stanford Research Institute has not correctly compiled its statistics.

We would like to see Mr. Meyner's goal succeed. But living in a world where the prime forces opposing us are led by Khrushchev and Mao Tze-tung, we can only encourage that until that ideal day comes we will be forced to rely to a great degree upon SAC, to quote Mr. Meyner, "an organization strong enough to prevent aggression," and to obtain our ray of hope from the analysis of the problem as given by the Stanford Research Institute. (Editors Note).

KREBIOZEN

With some regularity a brochure advocating the great merits of Krebiozen is thrust upon the desk of each of us. The Cancer Society becomes alarmed and our own cancer committee disturbed by this promotional activity.

No untoward effects have been proven, and maybe this drug has a place in the "psychotherapy" of cancer. No unprejudiced investigator has been permitted to do a satisfactory control study of it.

D.W.N.

THE HORNET'S NEST

The Editorial pages of the September issue of "ARIZONA MEDICINE" contained a peculiar hodge-podge of emotionalism and incompletely evaluated opinions, but with an undercurrent of good intentions.

"Desire it or not, there is a gradual socialization of the U. S.," reads one editorial. Being convinced of what he writes, the opinion is then expressed that medicine can go it alone — "This can be prevented in medicine by governing ourselves." Two pages back we were reading an extract from the 1959 president of the New York County Medical Society:

> "It is too late for mere delaying tactics. American doctors may find themselves helpless by-standers in a course of events they have done nothing to shape unless they are willing to accept the true dimension of the nation's health needs and dissatisfactions."

We cannot "prevent" the trend of events anymore than King Canute could stop the tides. Another editorial in the same issue of our journal urges "We must find a way to educate the public as to our purpose as based on historical facts." This reference to "historical facts" betrays a somewhat limited view of our purpose as a profession. The entire history of medicine is a gradual adjustment of our profession to social trends. A quotation from "THE MIRAGE OF HEALTH" by Rene J. Dubos may give a little needed perspective:

> "Elements of direct fear also contributed to the development of social medicine. The outbreaks of cholera had a prodigious effect. Eugene Sue's novel The Wandering Jew (1844-1845) and Victor Hugo's poem Chastisements (1853) gave hair-raising accounts of the panic that they caused. In America cholera and, particularly, yellow fever in 1878 stimulated the creation of a national board of health and then of special laboratories supported by public funds for the control of water supplies. This step led to the granting of ever-increasing power to health departments for the regulation of community life. Another phase of the socialization of medicine was ushered in by fear of tuberculosis. It was a short step from the demonstration that the tuberculous individual could infect his fellow men, and that tuberculosis was therefore a social disease, to the use of public funds for the control of the disease and even for the care of the patient. The trend toward socialization of medicine is still continuing, although there is reluctance in designating the process by this name. In one form or another, many aspects of communal activity are regulated, restricted, or prevented because of their effects on public health. Strict regulations will certainly extend to the control of industrial smokes and

exhausts of motorcars, as soon as the public becomes emotionally convinced that these nuisances constitute health hazards. All modern states, whatever their political complexion, recognize that the maintenance of health is as much a government responsibility as is education."*

It is not enlightened thinking to attempt to "prevent" these major historical steps. However, when we see that conditions over which we, at the moment, have little control, are causing the river to overflow its banks and to cut new stream beds, we can plan and encourage the flow into productive channels. If we are proud of our freedom and proud of the capabilities of our progressive capitalistic society, we must build the future with an enlightened evaluation of the present and an intelligent knowledge of the past. If Great Britain's medical program has jumped the gun on history, it is up to us to evaluate their errors, not in a spirit of glee or rancor, but in a spirit of constructive effort.

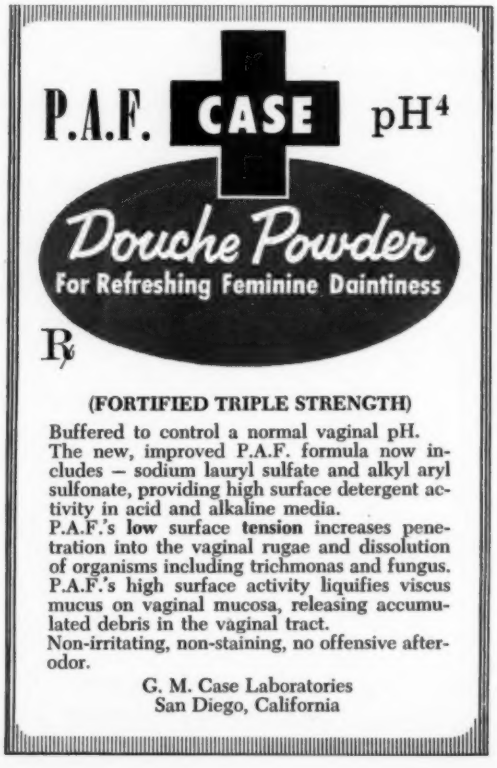
Our Editor is therefore to be complimented on urging the Arizona Medical Association to evaluate such plans as the Pennsylvania Medical Society Program or the Kern County Medical Society Program in California.

It is a strange anachronism, this cry against Federal "interference" in our medical life. We drive on Federal highways, we use the Federal mails, we rely on our Federal (National) armed forces, we are proud of our Federal parks. Let us not forget that, in matters of our citizens' health and welfare, if Federal aid were to be suddenly withdrawn, our nation's physical welfare would collapse almost overnight. And, if the cry for old age welfare is taken up by political groups, let us not risk our name by apparently dubious propaganda gimmicks such as a recently released A.M.A. survey which "emphatically proves that the majority of Americans over 65 are capably financing their own health care and prefer to do it on their own, without government intervention."* It would behoove us to avoid the cheap tricks if we are genuinely concerned with the integrity of our profession.

A.J.B.

*Cited by permission of the author and of the publisher, from "THE MIRAGE OF HEALTH" by Rene Dubos, Harper & Brothers, 1959 ($4.00).

*See Section on Reprints: "Science and Politics: A.M.A. Attacked for Use of Disputed Survey in 'Medicare' Lobbying," from "SCIENCE," Sept. 2nd, 1960.



Topics of Current Medical Interest

Arizona Poisoning Control Information Center

RENAL ALKALINIZATION IN THE TREATMENT OF CERTAIN POISONINGS

Salicylate Poisoning: Use of Sodium Bicarbonate

Accidental poisoning in children involving aspirin and other salicylates is very common. For example, during the nineteen-month period from January, 1959 to August, 1960, 443 cases of poisoning from aspirin were reported by the 19 Arizona Poisoning Control Treatment Centers. Most of these cases involved children in the one-to-four-year-old age group.

No specific antidote is available for treating salicylate poisoning. Following ingestion of salicylates, only 20 per cent of the salicyl radical is degraded in the body and no means of accelerating this process is known(1). As a result, there has been a search for a simple and effective method of enhancing removal of salicylate from the blood in the treatment of salicylism. Although it has long been known that urinary salicylate excretion is enhanced in the presence of an alkaline urine(2), until recently, there has been a reluctance to apply this phenomenon therapeutically in the treatment of salicylate poisoning. The use of an agent such as sodium bicarbonate to produce an alkaline urine has been condemned because of the potential danger of aggravating the alkalosis sometimes associated with salicylism. It is known that a profound alkalosis could result in tetany, encephalopathy, or death(3). However, several reports(1,3-6) in the literature indicate that the infant or young child poisoned with salicylate usually displays a metabolic acidosis at the time of treatment and that the serum pH usually is normal or actually decreased within a few hours following ingestion of salicylate. On this basis, recently, a number of investigators(1,3,7,8) have used or recommended the use of sodium bicarbonate in the early management of salicylism occurring in young children.

Two groups of investigators, Whitten *et al.*(1)

and Oliver and Dyer(2), have reported the results of this therapy in 39 young children with acute salicylism resulting from the accidental ingestion of salicylates. These workers found that, following intravenous administration of sodium bicarbonate in their patients, the rate of elimination of salicylate from the body and the coincident decrease in plasma salicylate levels achieved by this therapy compared favorably with values reported by others when exchange transfusion and hemodialysis were employed. It was found that signs of salicylism (e.g. severe hyperpnea) subsided more rapidly in these patients than in patients with salicylism who were not treated with sodium bicarbonate(3). As an example of the dosage employed, Oliver and Dyer(3) administered 3.5 - 5.0 mEq of sodium bicarbonate per kg intravenously during the initial four hours of treatment. In a few cases, it was found necessary to repeat this dose when the urine pH did not exceed 6.9 after four hours. In no case were more than two doses of sodium bicarbonate administered. Because of the tendency for serum potassium to fall in these patients, especially during sodium loading, each received intravenous fluids containing potassium. The amount of potassium administered approximated 3.0 - 5.0 mEq per kg during a 24-hour period. Complications, such as convulsions, tremors, gastric dilatation, asthena, prolonged vomiting, or edema, were not observed in the bicarbonate-treated patients(3). It should be noted that all of the patients involved in these studies were young children with acute salicylism and that they were treated rather soon after ingestion of salicylates. Oliver and Dyer(3) emphasize that bicarbonate therapy in salicylate poisoning should be limited to children less than four years of age, since respiratory alkalosis is the principal acid-base disturbance consequent to salicylism in older children and adults.

Salicylate Poisoning: Use of Acetazoleamide

It is well known that inhibition of the enzyme carbonic anhydrase by a chemical agent such as acetazoleamide will lead to alkalinization of the urine. Several investigators(6-9) have tested the efficacy of acetazoleamide in the treatment of salicylate poisoning. All of these workers agree that following administration of this agent there results a prompt rise in urinary pH with a concomitant increase in urinary excretion of salicylate. On the other hand, some of these investigators(3,8,9) report that the use of acetazoleamide in patients with salicylism is not without danger. It has been pointed out that this agent is capable of producing a systemic metabolic acidosis and that there is a risk of accentuating the acidosis which is present in small children with salicylism(3,8). Schwartz and co-workers(9) have reported that complications including convulsions and papillo-edema occurred in two of their patients with salicylism who were treated with acetazoleamide. From their studies, they concluded that "the combination of salicylate intoxication and administration of acetazoleamide may not be entirely benign."

Kaplan and del Carmen(8), who conducted animal studies using rats that received toxic doses of sodium salicylate, demonstrated a much higher mortality in rats treated with acetazoleamide than in those animals administered sodium bicarbonate. Feuerstein *et al.*(6) have criticized this work from the standpoint of the large doses of salicylate employed in these studies. They point out that the high blood salicylate levels (250 - 300 mg/100 ml) attained in these animals are far in excess of values seen clinically. Further, they state that "experiments with rats may not be sufficiently comparable to salicylate poisoning encountered in humans to be relied upon for the selection of the best mode of therapy."

Feuerstein and co-workers(6) have recently reported the results of the treatment of 27 patients with salicylism by a regimen consisting of intramuscular acetazoleamide and intravenous fluids. From these studies, the authors maintain that the use of acetazoleamide provides a safe and effective means of facilitating excretion of salicylate in salicylate poisoning. However, these workers point out that until more definite experimental evidence is available, this mode of therapy should be conducted under the close supervision of a physician skilled in handling problems of fluid and electrolyte balance. One would be compelled to agree with the conclusion made by these investigators, namely, that the conflicting evidence in the literature concerning the use of acetazoleamide in the treatment of salicylism suggests caution in the indiscriminate application of this type of therapy.

Barbiturate Poisoning

It is of interest to note the recent report(10) of studies in France in which the effect of alkalinization of the urine in barbiturate poisoning was determined. Experimental studies in dogs revealed that variations of the pH of the plasma

modified the distribution of barbiturates in the body. Respiratory acidosis caused an accumulation of barbiturates in the cells, whereas alkalosis resulted in a diminution of barbiturate content, notably in nerve cells. Alkalinization of the urine was found to increase markedly the renal excretion of phenobarbital. This excretion due to renal alkalinzation was shown to exceed that amount of phenobarbital excreted as a result of polyuria. Seventy-five patients with severe coma due to barbiturate poisoning were treated by alkalinzation of the plasma and urine. This treatment was found effective in reducing the duration of coma in these patients. The results of these studies should stimulate further investigation of the efficacy of this therapy in the treatment of barbiturate poisoning.

STATISTICS OF 63 POISONING CASES IN ARIZONA DURING JULY 1960

AGE:

84.1% involved under 5 year age group	(53)
3.2% involved 6 to 15 year age group	(2)
3.2% involved 16 to 30 year age group	(2)
4.8% involved 31 to 45 year age group	(3)
3.2% involved over 40 year age group	(2)
1.5% were not reported	(1)

NATURE OF INCIDENT:

93.7% accidental	(59)
6.3% intentional	(4)

TIME OF DAY:

31.8% occurred between 6 a.m. and noon	(20)
28.6% occurred between noon and 6 p.m.	(18)
11.1% occurred between 6 p.m. and midnight	(7)
1.5% occurred between midnight and 6 a.m.	(1)
27.0% were not reported	(17)

OUTCOME:

100% recovery	(63)
0% fatal	(0)

CAUSATIVE AGENTS:

Internal Medicines	Number	Percent
Aspirin	19	30.2
Other Analgesics	1	1.5
Barbiturates	1	1.5
Antihistamines	1	1.5
Laxatives	2	3.2
Cough Medicine	0	0.0
Tranquilizers	0	0.0
Others	9	14.3
Subtotal	33	52.2
External Medicines		
Liniment	0	0.0
Antiseptics	1	1.5
Others	3	4.8
Subtotal	4	6.3
Household Preparations		
Soaps, Detergents, etc.	2	3.2
Disinfectants	0	0.0
Bleach	5	8.0
Lye, corrosives, drain cleaners	1	1.5
Furniture and floor polish	0	0.0
Subtotal	8	12.7
Petroleum Distillates		
Kerosene	2	3.2
Gasoline	0	0.0
Others	2	3.2
Subtotal	4	6.4
Cosmetics	3	4.8
Pesticides		
Insecticides	2	3.2
Rodenticides	0	0.0
Others	2	3.2
Subtotal	4	6.4
Paints, Varnishes, Solvents, etc.	3	4.8
Plants	3	4.8
Miscellaneous	1	1.5
Unspecified	0	0.0
TOTAL	63	100.0

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MEDICAL COURT CASES

by Howard Newcomb Morse*

Vonault vs. O'Rourke

Supreme Court of Montana

33 P. 2d 535

Miss Alice Vonault consulted Dr. L. L. O'Rourke, a physician and surgeon, as to her physical condition and was advised by him that she was afflicted with fibroid tumor and diseased appendix. Dr. O'Rourke recommended an operation for her relief. It was agreed that the operation should be performed the next morning. Dr. O'Rourke told Miss Vonault to arrange for a room at St. Ann's Hospital, and that he would arrange for an operating room. The suggested arrangements were carried into effect and Miss Vonault entered the hospital that evening.

The operation occurred between the hours of 8 and 10:50 a.m. Those present at the operation were Dr. O'Rourke, who performed the operation, Dr. John H. Noonan, who assisted, Dr. T. J. Kargican, who administered the anesthetic, Miss Margaret Casy, then a student nurse, who acted as "sponge nurse," two other nurses, one of whom acted as instrument nurse, and the other who assisted in various ways, and a "sister" who had an official position with the hospital. Mrs. Lizzie Reviere, a sister of Miss Vonault, went to the operating room with her and remained near the doorway during the operation; she saw a part of the operation but was not near enough to observe it all.

Miss Vonault was prepared and dressed for the operation by a hospital nurse and the doctors. The operative field was cleansed and sterilized, and the patient was dressed in a "surgical gown" such as is ordinarily used in the circumstances. The gown opened at the back and came up to about the region of the collar bone. Over the gown a sheet was draped from the neck down; a towel folded in three folds was placed over the patient's chest. An ether mask was placed above the face.

When the patient was first placed on the operating table there was a pillow under her head; this was later removed and her head allowed to rest on the table on a plane with the shoulders. After she had been "surgically anesthetized" by the use of ether her hands were brought up from her sides and folded upon her chest. The surgical gown was brought up and folded over the arms and a drop sheet left on top. At about this stage of the proceedings the head of the operating table was lowered so that the patient was left in a "Trendelenburg position." The ether was dropped on the mask at a rate not faster than it evaporated. Dr. Kargican devoted his entire attention to the administration of the anesthetic and had nothing to do with the operation proper.

The operation was successful and the patient obtained the desired relief. All agreed as to the accuracy of the diagnosis and the beneficial result accomplished. At the conclusion of the operation Miss Vonault was returned to the hospital room and there delivered into the charge of Miss Johannah Driscoll, a graduate registered nurse. The nurse kept what is known as a chart or nurse's record. This record disclosed that Miss Vonault was returned to her room from the operating table at 10:50 a.m.

The nurse immediately began to minister to the needs of her patient, and at 11 a.m. administered a salt solution. This solution was injected into the axillae just under the arms. The skin was perforated by two needles, each on an extension of a forked tube running from the receptacle in which the solution was contained. The chart denominated this a normal salt solution and designated the quantity as a "thousand cc." The solution was fed into the system slowly through the needles, and the operation consumed some time.

At 11:15 a.m. Dr. O'Rourke visited the room and observed the patient. At that time Miss Vonault had not regained consciousness and probably did not do so until after the injection had been completed; at least the patient had no knowledge or recollection of such an injection. At some time subsequent to the recovery of consciousness Miss Vonault felt a burning sensation on her chest, and upon examination it was found

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that she had a large blister which she described as about an inch thick and two inches long and an inch wide. The blister or burn caused Miss Vonault great pain. It filled with pus and gave out a disagreeable odor. In healing it left an unsightly scar. The injury burned and annoyed her so that she could not sleep.

Mis Vonault brought an action in the Third Judicial District Court of Deer Lodge County, Montana, against Dr. O'Rourke to recover damages for injury resulting from alleged malpractice. During the course of the trial Miss Vonault's counsel, while cross-examining Dr. O'Rourke, asked the following question: "And that you also stated that she (Miss Vonault) had a burn and had a scar and that you carried insurance to protect you against that kind of a proposition and you thought she should be compensated for it?" Counsel for Dr. O'Rourke made the following objection: "We object to this as improper cross-examination and we assign the same as misconduct on the part of counsel and prejudicial to the rights of the defendant." The court sustained the objection and ordered the question stricken. A jury returned a verdict for Miss Vonault in the sum of $2,200 and the court entered judgment accordingly. Dr. O'Rourke appealed, vigorously contending that error was committed by the injection of the subject of insurance into the case.

This contention was upheld by the Supreme Court of Montana, which reversed the decision of the court below. The Supreme Court declared: " . . . in actions for personal injuries or death the fact that the defendant is protected by indemnity insurance against liability for damages cannot, directly or indirectly, be injected into the case by evidence, argument or remarks, so as to influence the jury, and the violation thereof is ordinarily held to be reversible error."

THE HEALTH OF PIMA COUNTY

The Health Officer of Pima County, Dr. Esther M. Closson, has recently released her Annual Report for 1959 for circulation to the public. It is apparent that the financial resources of the Department have expanded considerably during the five-year period between 1954 and 1959. The budget for 1954-55 was $138,911.00, while that of the fiscal year 1958-59 was $240,-274.00. In these five years the physical space allotted to the Health Department had almost doubled.

As is well known, the processing of vital statistics is a most important function of any Health Department. The population growth of the Tucson area is pointed up by the fact that in 1920 only 687 births were reported, while in 1959 the number of births were counted as 6,597. For the same years, the deaths were recorded respectively as 806 and 2,025.

The most sensitive index of the sanitary state of a community is generally regarded as the level of infant mortality. Some 30 years ago at the time when the Pima County Health Department was first organized, this rate of deaths among infants less than one year of age was quite high. Figures for the whole county are not available, but for Tucson and vicinity in 1930 the infant mortality rate was 138, i.e., 138 deaths per 1000 live births during that year. The current level is 28. This figure is only slightly above the average figure for the United States as a whole. It is felt that the well baby clinics and the home visits of public health nurses have contributed much to hasten this marked decline in infant mortality.

During 1959 completely new and modern x-ray equipment was installed at the Health Department. The taking and reading of chest x-rays is an important activity of the staff, as indicated by the number of examinations — 16,125 during 1959. The purpose of these tests is to check the health of food handlers, school teachers, baby sitters, barbers, contacts of tuberculosis cases and many others.

As tuberculosis is still the main communicable disease prevalent in Arizona, a considerable proportion of the Department's activities was devoted to that problem. Aided by the provisions of the 1955 Tuberculosis Control Act and by grants from the St. Lukes-in-the-Desert Board of Lady Visitors and from the Pima County Tuberculosis and Health Association, a strong effort was made to bring the register of tuberculosis cases up to date and to intensify efforts to bring all cases of tuberculosis under supervision. Dr. William Ure was appointed as tuberculosis

consultant to the Department and has done most useful service in strengthening the tuberculosis control program.

In the poliomyelitis immunization program, the number of inoculations regretably declined over those of previous years. However, a total of 14,452 injections of vaccine were administered under auspices of the Department during 1959.

Two groups of employees rendered especially valuable service as is fully set forth in the report. 1) The public health nurses, who in addition to staffing the pre-natal, well baby and other special clinics, carry out 8-9,000 home visits over the period of the year. 2) The sanitarians, who are responsible for supervising the purity of the water, milk and food supplies of the community, as well as for many other matters of sanitary importance.

Space does not permit discussion of the many additional services that are carried out by the Pima County Health Department, but perhaps attention should be called to the responsibility of the Department for school health work in the county and parochial schools. This includes immunizations and examination for physical defects.

BOOK REVIEWS

YOUR CHILD'S CARE, 1001 QUESTIONS AND ANSWERS*

This mother's guide to happy and healthy babies, written by two experienced practicing and teaching pediatricians, is well written, concise, and in addition to the usual subjects found in a manual for mothers of newborn babies and older children, encompasses a spectrum of subjects of pediatric interest not usually found in such a "home medical text."

The over 1001 questions and answers included deal with such basic topics as the Rh factor, the newborn baby formula, breast feeding, allergies, heart disease, contagious diseases, behavior problems. Also discussed are new advances and discoveries in pediatrics – new drugs for better treatment of many childhood diseases, and new methods and techniques in the care and treatment of congenital heart disease, tuberculosis and other diseases. Of particular interest to the practicing pediatrician and the general practitioner who sees a number of children in his practice will be the manner in which the questions on sex education, the handicapped child, speech disorders, the deaf child, toys and books, baby sitters, and even discussions of movies, radio, comic books and TV, and the problem of nursery school and camp are handled.

These are problems that confront every practitioner who has to do with children and their parents. They are well discussed, but not belabored, in this concisely written book. The book is written in plain language that the mother of average education can understand without difficulty, but the subjects are not gone into the point where unnecessary doubts and alarms are raised. It is consistently written in a fashion that would acquaint the mother or parent of the child with the general nature of the disorder but would encourage the mother to seek medical help for definitive treatment. The book should be well accepted by the average mother and could equally well serve as a reference in the doctor's library.

Doubleday & Company

*Harry R. Litchfield, M.D. and Leon H. Dembo, M.D.

RUDOLPH MATAS*

The legendary career of Dr. Matas along with his extraordinary contributions are covered at great length in this volume. It is only a shame that this biography never permits us to understand and see Dr. Matas as the extraordinary man he was. For the continued light of the halo makes it difficult to see and understand him as only a mortal.

Doubleday & Company, $5.95

*Isidore Cohn, M.D., with Hermann B. Deutsch.

Reprints

Science and Politics: AMA Attacked for Use of Disputed Survey in "Medicare" Lobbying*

The American Medical Association, which found itself deeply involved in the Congressional fight over medical aid to the aged, last week was under attack for its ues of a survey of the aged presented before the fifth congress of the International Institute of Gerontologists held at San Francisco in mid-August.

A widely distributed AMA press release said the survey "emphatically proves that the great majority of Americans over 65 are capably financing their own health care and prefer to do it on their own, without government intervention." The release said that "90 per cent (of the sample) could think of no personal medical needs that were not being taken care of," and that only "a relatively small percentage of those who said they did have medical needs attributed the failure to meet these needs to lack of money." The release credited James W. Wiggins and Helmut Schoeck of Emory University as director and associate director of the study and listed 16 university sociologists from schools throughout the country as participating in the study.

The AMA endorsement and interpretation of the survey were picked up by newspapers across the country. Some papers used it as the basis for editorials opposing any large-scale federal plan for aid to the aged.

Comments on the Survey

Last week Senators Eugene McCarthy (D-Minn.) and Pat McNamara (D-Mich.) began inserting in the Congressional Record comments on the survey from the "participating" sociologists and from officials of the congress on gerontology. Here are some excerpts: From Noel Gist of the University of Missouri: "I participated in a study of aging to the extent of supervising the interviewing of a sample of rural residents in Missouri. . . . The news release, by the use of my name . . . leaves the impression that I endorse the conclusions presented. . . . I do nothing of the sort. . . . It was quite obvious to me that the questionnaire sent to us was a very poor

*The above article is reprinted from Science by permission (Science 132:604-605, Sept. 2, 1960).

one, and seemed to be devised by amateurs in research. But since we agreed to do the interviewing for the project we completed the assignment."

From Clark Tibbits, chairman of the Executive Committee for the Americas, International Association of Gerontology: "I was in the audience when Professor Wiggins made his presentation. I was astonished at the data and conclusions reported. The basic figures on income, assets, and health status differ by as much as 100 per cent from those reported by other studies during the past decade and from figures available through such standard sources as the Bureau of the Census, the Current Population Survey, and the National Health Survey."

From Wayne Thompson, of Cornell, a discussant of the paper: "I did not see a copy of the final paper until the day before it was read. . . . I must report that I was appalled to read the paper, which I found to be of such poor quality of scientific research technique and writing. Indeed, I regretted at that point that I had been so naive as to have accepted the paper without having seen it in advance, especially since it would be presented before an audience of internationally known scientists who might think of this as representing American sociology. . . . When the paper was actually presented, there was an immediate reaction on the part of the audience, attacking its unscientific character, and the ease with which Wiggins and Schoeck jumped to untenable conclusions. The survey was badly designed, poorly conceived and completely misleading. Not a single scientist present at the meeting rose to support either Mr. Wiggins or his paper."

The critics suggested that the questionnaire had been drawn in a way that encouraged responses that would fit the preconceptions of the planners, a complaint that seemed to apply to at least the one question quoted in the news release. The multiple choice question was apparently intended to discover what the aged thought should be done to make medical coverage more easily available to them, but it did not list as an alternative the widely debated plan to add medical coverage to Social Security. "This (response)," said the official AMA interpretation, "demonstrates that the vast majority of our older citizens favor voluntary programs and that only 10 per cent or so support compulsory plans."

Defense of the Survey

The AMA release noted that the survey was "based on extended interviews with 1500 non-institutional persons 65 years of age and over . . . by trained interviewers under the supervision of professional sociologists representing more than a dozen well-known American universities and colleges." The survey critics said that in addition to aged persons in hospitals, homes for the aged, and other institutions, the survey left out all non-whites and all people on old age assistance. One of the participating sociologists said she had been instructed to interview no one living in an apartment, thus eliminating tenement dwellers from at least this part of the sample. In general, the critics suggested the sample had been biased against those who were most likely to be having difficulty meeting medical expenses.

In defense of the paper an AMA spokesman emphasized that the survey was designed by Wiggins as a study of the "normal" segment of the aged population. Wiggins made this point in the course of the paper. But neither the title of the paper ("A Profile of the Aging: USA") nor the AMA press release made clear that the survey was less than a study of the aging population as a whole. There was no mention of the "normal" idea in the press release, and no precise definition of what Wiggins regarded as "normal" in the paper itself.

The survey was financed by a $20,000 grant from the Foundation for Voluntary Welfare. The foundation is a subsidiary of the William Volker Fund, which an AMA spokesman described as having a "conservative outlook." Wiggins is an unpaid consultant to the AMA's medical economics department.

THE CRUEL DECEPTION OF CIVILIAN DEFENSE*

ROBERT B. MEYNER

One of the questions frequently put to me has to do with steps I ought to take now in our state to protect our people in event of war. I am

asked, for example, whether I will go before the state legislature with a plan to build a vast system of underground shelters, or recommend that individuals start digging deep cellars of their own.

If we were living in 1939 or even in 1914, my answer would be easy. I would start all the machinery turning in New Jersey as fast as I could to guard against attack from the air. I would most certainly recommend underground shelters.

But were are not living in 1914 or 1939. This is 1960, the age of nuclear weapons and radioactive contamination. And the more you study the nature of these new weapons, the more you realize that going underground is no answer. Suppose we take my own city of Newark, for example. It is a fair-sized American city, one large enough and important enough to invite enemy attack.

Now, if I could be sure that an enemy would plan to drop a bomb of the size that was exploded over Hiroshima, I would recommend building an effective system of underground shelters. But the Hiroshima bomb was a kiloton bomb. That is, it had a destructive force measured in terms of thousands of tons of TNT. The bombs that will be used against cities in the next war will not be kiloton bombs but megaton bombs. They will contain the equivalent of millions of tons of TNT.

It would be unrealistic to assume that these bombs will not be used in the event of war.

The basic purpose in modern warfare is to kill an entire city. Today, one 20-megaton bomb contains more destructive power than all the bombs that were exploded in World War II.

If a city like San Francisco or Newark were to be hit by a few megaton nuclear bombs, everything in the civilian defense handbook would go out the window.

The area of total or near-total destruction from each megaton blast would be upward of 20 square miles. Most of the underground shelters in the area would be sealed in under a mountain of radioactive rubble. But equally devastating would be the fire, spreading out from the center with jet plane speed in all directions.

Meanwhile, a canopy of radioactivity from these high fission-fusion blasts would contaminate an area covering hundreds of square miles. The problem would be intensified because the dirt and the rubble would carry the kind of radioactivity that would retain its killing power not for hours but for months, and, in some cases, for years.

Now, let us suppose that people could come up out of the shelters. What kind of world would they come up to? What would they use for air? What would they use for food? What would they use for hospitals? What would they use for streets? What would they use for people?

Remember this: any enemy bent on killing a city is not going to allow a puny instrument like an underground shelter to slow him up. All he has to do is pick out of his nuclear rack a few bombs with a high megaton rating and dispatch three or four of them — or maybe even 10 or 20 for the extra large cities.

That is why I say we are fostering a cruel deception on the American people if we try to persude them that they can have civilian defense through underground shelters in the next war.

I defy anyone to demonstrate that he can provide genuine or even reasonable protection through such shelters. And the reason he can't is that he doesn't know whether he is going to be hit with one bomb or five or six or 16 — or even whether it will be kilotons or megatons.

I believe I can best serve the people of my state by making clear to them that there is one and only one defense against a nuclear war — and that is peace. Either we create a situation of safety, security, and sanity for the human race in this world, or we destroy the precarious conditions that make life on this planet possible.

Instead of spending the $150 billion or $200 billion that would be required for a national network of underground shelters, let us put just a fraction of that money and work into a massive effort to make our world safe for human habitation — while there is yet time.

We ought now to be talking about building 200 million pre-fabricated homes for the homeless people of Asia and Africa — instead of bemusing ourselves with the cruel nonsense about underground shelters.

We ought to be forging links with other peoples instead of forging iron doors to deep cellars. Our ties to other peoples — the good will we can earn, the support we can justify for world leadership — these will contribute far more to our safety and peace of mind than the holes we can jump into when it is too late.

If we are serious when we say we want peace,

then there is only one way to get it. And that is by creating in the world an organization strong enough to prevent aggression, strong enough to carry out effective arms control, strong enough to deal with basic threats to the peace, strong enough to eliminate some of the tensions, strong enough to punish individual violators — strong enough, in short, to create a rule of law in the world instead of the rule of force.

The President has said he believes in world law. But I have not heard anyone in the Administration propose the specific strengthening measures necesary to give the United Nations the effective power that world law requires. I have not heard anyone in the Administration propose the kind of revision conference that has as its aim the transformation of the United Nations into an authority that could create a situation of safety and sanity for the world's peoples.

From time to time, I hear it said that there are no major issues in 1960. What do people mean when they say there are no major issues? We have the biggest issue in the world to think about. That issue is peace. It can only be peace — real peace, that is.

By real peace, I mean not just a brief siesta between crisis and calamity. I mean a peace that sticks and a peace that works. Such a peace requires more than special deals, over or under the table. It is the kind of peace that must make sense to the human spirit and the human intelligence.

One of the main weaknesses in the present approach to peace is that both the Americans and the Russians are giving the world the impression that war or peace is their own private business, and that our own interests are the only ones that count. The majority of the humans on this planet happen not to live in either the United States or the Soviet Union. What we do concerns them. Yet we debate issues as though no one else in the world existed.

The cause of human life on earth has never been more precarious or fragile than it is at this moment. Within a year — two years at the latest — the existence of man will be staked on a board of pushbuttons. The means are now at hand for eliminating life several times over. Soon these means will be fitted into the special delivery systems. The United States and the Soviet Union will be some 13 minutes apart on the route of the ICBMs.

Only the other day, we heard prominent military men argue that the security of the United States depended on having constantly in the air several hundred jet bombers fully loaded with nuclear bombs. What is the step beyond that? It takes no particular feat of the imagination to recognize that the next argument will be to drop the bombs on the other fellow before he drops them on us.

If we really want security in today's world, there is only one way to get it. And that is to make sure that no one has the means of annihilating anyone else. This brings us to the question of arms control. I contend that our safety today depends on the workable control of force rather than the pursuit of force. But is workable control possible?

There is only one way to find out. That is by declaring it to be the fundamental objective of our foreign policy — and not only to say it but mean it. President Eisenhower has said it, but does his own Administration believe it or mean it? Does the Atomic Energy Commissioin believe it?

It is going to be difficult enough to get the Russians to agree on arms control with inspection and enforcement, but if our own government is ambling all over the place on the issue, what hope is there?

Premier Khrushchev has finally said that the Soviet Union would be willing to accept inspection and enforcement as part of a comprehensive plan for arms control. But he hasn't said what he means by this; he hasn't said what he means by inspection; he hasn't said what he means by enforcement.

The reason Khrushchev wants peace is clear. He doesn't think suicide in a nuclear war is the proper vehicle for advancing the cause of Communism. I think it is equally true that democracy canot flourish through suicide.

But if there is not to be mutual suicide, we have to figure out a structure for peace that really works. Khrushchev says he is serious about agreeing to arms control with inspection. Let's find out whether he really means business.

Let's test the Russians instead of testing the bombs. Now that the door has been partially opened we ought to be pressing against it with all the weight we can command. We ought to keep after Khrushchev and not let up until the world has had the fullest possible airing of just

what he means by inspection and enforcement, and just what it is that we propose. In short, it is our turn to speak.

The question of control, quite literally, is a matter of life or death for our nation. This is the direction we have to take if our foreign policy is to work. This must be our thrust if we are to serve the cause of a just peace without freedom.

Yet this is precisely the time that the Administration chooses to talk about spreading nuclear weapons around to other nations. There is no point in negotiating over disarmament once the nuclear stockpiles become general.

When we created these cataclysmic weapons, we justified our policy by saying we were in a position to control them. What do we say now?

The President says that we will give them only to our friends. But the long history of nations shows that friends change. And even the best of friends sometimes disagree. How will it advance the cause of American security to increase the number of fuse points for a world nuclear explosion?

Here again some say there are no real issues. Of course there is a real issue. The issue is whether we understand what our age is all about, whether we have a view of man and human destiny, whether we can use human intelligence and the human spirit in the cause of a world made safe for people.

In short, the issue is whether we are equal to the needs of our civilization, and whether we can stand before the human community with the ideas that are literally large enough to embrace the world. If either party fails to make sense on this issue, it makes no sense on any issues.

There are two kinds of preparedness. One is the kind represented by the big bombs. If we are ever in a showdown on that level, God help us.

But there is also another kind of showdown looming ahead in the world — and it requires another kind of preparedness. This is the nonmilitary showdown. It will be determined by the side that has the most to say about human freedom and the making of a better and safer tomorrow for all peoples, and by the side that can earn and keep the respect and support of the overwhelming majority of the world's peoples.

*Reprinted from "THE PROGRESSIVE" (June 1960) by permission of the Editor and of the Author, Governor of New Jersey.

CIGARETTE SMOKING AND CARDIOVASCULAR DISEASES*

In 1956, the American Heart Association issued a statement on smoking and cardiovascular diseases. Among other things, this statement indicated that the available evidence at that time was not sufficient to justify conclusions concerning a cause and effect relationship between cigarette smoking and increased death rates from coronary heart disease. Since then, sufficient additional knowledge has been accumulated to warrant a new report on cigarette smoking and its possible relationship to cardiovascular diseases.

Up to the present, a number of medical studies have been made, nearly all demonstrating a statistical association between heavy cigarette smoking and mortality or morbidity from coronary heart disease. In these studies, death rates from coronary heart disease in middle-aged men were found to be from 50 to 150 per cent higher among heavy cigarette smokers than among those who do not smoke. This statistical association does not prove that heavy cigarette smoking causes coronary heart disease, but the data strongly suggest that heavy cigarette smoking may contribute to or accelerate the development of coronary heart disease or its complications.

*From CIRCULATION, Volume XXII, July 1960.

Future Medical Meetings and Postgraduate Education

Arizona Chapter of the American College of Surgeons

You are invited to attend the Fall Clinical Congress of the Arizona Chapter of the American College of Surgeons, to be held at the new Tidelands Motel, Tucson, on November 17, 18, and 19, 1960.

Again this year the Congress will be open to all doctors of medicine interested in surgery. The following program has been arranged for your professional stimulation and personal enjoyment.

Warren H. Cole, M.D., FACS, Professor and Head, Department of Surgery, University of Illinois, College of Medicine, Chicago — "CANCER CHEMOTHERAPY," "STRICTURES OF THE COMMON DUCT."

George C. Morris, Jr., M.D., FACS, Assistant Professor of Surgery, Baylor University College of Medicine — "SURGICAL TREATMENT FOR ARTERIOSCLEROTIC DISEASE," "SURGICAL TREATMENT FOR RENAL HYPERTENSION."

J. George Moore, M.D., Associate Professor, Obstetrics & Gynecology, University of California, College of Medicine, Los Angeles — "ENDOMETRIOSIS," "HYSTERECTOMY, ABDOMINAL VS. VAGINAL."

J. Earle Estes, M.D., Internal Medicine, Phoenix, Arizona — "ATHEROSCLEROTIC ANEURYSMS AND OCCLUSIONS: SELECTION FOR ARTERIAL SURGERY."

Harold E. Crowe, Orthopedic Surgery, Los Angeles, California — "THE DIAGNOSIS OF PERSONAL INJURIES."

John W. Brown, M.D., Public Health Medical Officer, Epidemiology Section, California State Board of Health, Berkeley, California — "THE STAPH PROBLEM — A SURGICAL RESPONSIBILITY."

Daniel T. Cloud, M.D., Pediatric Surgery, Phoenix, Arizona — "SIMULATED SURGICAL BOWEL OBSTRUCTION IN CHILDREN."

Lt. Thomas Mildebrandt, Arizona Highway

Patrol, "A LAW ENFORCEMENT OFFICER LOOKS AT INTOXICATION AS AN ACCIDENT CAUSE.".

Papers and clinical discussions will be held in the forenoon on Thursday, Friday, and Saturday. In the afternoon you may choose between cineclinics and golf. You will be the guest of the Arizona Chapter, ACS, at cocktails preceding the dinner Thursday evening.

For the banquet Thursday evening we are happy to announce that Senator Barry Goldwater will be the speaker. The suggested title for his presentation is "The Election – Its Effect Upon the Patient and the Doctor."

Mark your calendar now – ACS, Tucson, Tidelands, Nov. 17, 18, and 19.

Sincerely yours,
A. G. Wagner, M.D.
Program Chairman, Arizona Chapter, ACS

INTERNATIONAL COLLEGE OF SURGEONS SOUTHERN CALIFORNIA CHAPTER

The Third Western Sectional Meeting sponsored by the International College of Surgeons will be held in Las Vegas, Nevada, at the Riviera Hotel, November 20, 21 and 22, 1960.

INTERIM SESSION AMERICAN COLLEGE OF CHEST PHYSICIANS

Washington, D.C., November 26-28, 1960

The American College of Chest Physicians will hold its annual Interim Session at the Shoreham Hotel in Washington, D.C., this November. The scientific sessions will be held on Saturday and Sunday, November 26 and 27. Monday, November 28, will be reserved for administrative sessions. Dr. M. Jay Flipse, Miami, Florida, President of the College, will preside.

Dr. Joseph W. Peabody, Jr., Washington, D.C., and his committee, have arranged a scientific program of exceptional interest including Symposia on Congenital Bronchopulmonary Disorders, The Role of Steroid Therapy in Chest Diseases, and Current Therapeutic Issues.

A highlight of the program will be the Fireside Conferences on Sunday evening, November 27. In addition, there will be three round table luncheon discussions on both Saturday and on Sunday. These will feature prominent speakers discussing various aspects of heart and lung diseases.

AMA

American Medical Association
14th Clinical Meeting
November 28-December 1, 1960
Washington, D. C.
Headquarters: Sheraton-Park Hotel
Scientific Activities: National Guard Armory

ARIZONA HEART ASSOCIATION

Four noted heart specialists will be speakers at the Fourth Annual Cardiac Symposium to be held at the Arizona Biltmore Hotel in Phoenix next January 27 and 28.

Dr. Leslie B. Smith, Phoenix physician, and Chairman of the Committee on arrangements listed the following speakers for the two day sessions:

(1) Dr. Paul Dudley White of Boston, one of the best-known authorities on heart disease. A founder of the American Heart Association.

(2) Dr. E. Grey Dimond, Director of the Institute for Cardio-Pulmonary Diseases at Scripps Foundation at LaJolla, California, and President-elect of The American College of Cardiology.

(3) Dr. Robert E. Gross, Surgeon-in-Chief of the Children's Hospital, Boston, and Ladd Professor of Children's Surgery, Harvard Medical School. Dr. Gross is sometimes mentioned as the first surgeon to successfully undertake open heart surgery in the world. Dr. Gross is one of the pioneers in open heart surgery and first succeeded in tying off the "ductus arteriosus" in 1939.

(4) Dr. W. Proctor Harvey, author, teacher, and Director of the Division of Cariology at

Georgetown University Medical Center in Washington, D. C.

This program is a part of the professional education program for the Heart Association and all physicians are urged to register early at the Heart Office, which is 2816 North 16th Street, Phoenix, or 1842 East Broadway in Tucson.

Dr. Smith said — "Last year's program attracted physicians from twenty-four states and we expect heavy registration this year because of the quality of our speakers."

Other members of the Symposium Committee include: Doctors, Arthur R. Nelson, Phoenix; Richard O. Flynn, Tempe; William A. Butcher; Andre J. Bruwer; Robert N. Class, Tucson, and William W. Wood, Executive Director of the Heart Association from Tempe.

Tentative Program

9TH ANNUAL CANCER SEMINAR

of the Arizona Division

American Cancer Society

"Changing Concepts in Tumor Formation and Therapy"

January 12, 13 & 14, 1961

Tidelands Motor Inn — Tucson

Thursday, January 12

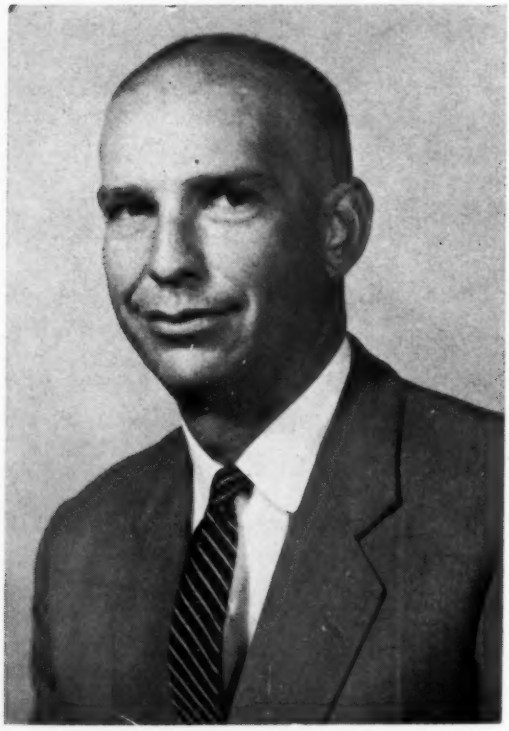
9:00 A.M.	Greetings — Dr. Lindsay E. Beaton, President, The Arizona Medical Association
9:15 A.M.	Some Metabolic Approaches to Cancer Chemotherapy — Part I — Arnold D. Welch, Ph.D., M.D.
9:45 A.M.	Immunology as It Relates to Cancer: Theoretical Aspects — Chester M. Southam, M.D.
10:30 A.M.	Break
10:45 A.M.	The Polyoma Story — Arthur W. Ham, M.B.
11:15 A.M.	Diagnostic and Therapeutic Studies on Cancer of the Adrenal — Roy Hertz, M.D.
12:00 Noon	Luncheon and Round Table
2:00 P.M.	The Use of Limited Surgery and Maintenance Chemotherapy for the Management of Certain "Inoperable" Tumors — Jeanne C. Bateman, M.D.
2:30 P.M.	Laboratory Studies in Cancer Chemotherapy with Fluorinated Pyrimidines — Charles Heidelberger, Ph.D.
3:00 P.M.	Break
3:15 P.M.	Correlation of the Roentgenologic and Pathologic Findings in the Various Types of Primary Bone Tumors — C. Howard Hatcher, M.D.
3:45 P.M.	Questions and Answer Session

Friday, January 13

9:15 A.M.	Assessment of Environmental Agents in the Pathogenesis of Lung Cancer — Paul Kotin, M.D.
9:45 A.M.	Indirect Mechanisms in Carcinogenesis — Henry S. Kaplin, M.D.
10:15 A.M.	Break
10:30 A.M.	Some Metabolic Approaches to Cancer Chemotherapy — Part II — Arnold D. Welch, Ph.D., M.D.
11:15 A.M.	Chemotherapy of Choriocarcinoma and Related Trophoblastic Tumors — Roy Hertz, M.D.
12:00 Noon	Luncheon

1:30 P.M.	The Treatment of Bone Sarcomas in Selected Patients by Regional Resection – C. Howard Hatcher, M.D.
2:00 P.M.	The Treatment of Advanced Metastatic Tumors – Jeanne C. Bateman, M.D.
2:30 P.M.	Break
2:45-4:00 P.M.	Panel Care of the Patient with Advanced Malignant Diseases

Jeanne C. Bateman, M.D.
C. Howard Hatcher, M.D.
Roy Hertz, Ph.D., M.D.
Henry S. Kaplan, M.D.
Harold W. Kohl, M.D.
Charles P. Neumann, M.D.
Bishop Francis J. Green



Chester M. Southam, M.D.
Sloan-Kettering Institute
Research Unit of Memorial Center
for Cancer and Allied Diseases
New York City

Saturday, January 14

9:15 A.M.	Clinical Pharmacology Studies with Fluorinated Pyrimidines – Charles Heidelberger, Ph.D.
9:45 A.M.	Immunology as It Relates to Cancer: Clinical Applications – Past-Attempts and Future Possibilities – Chester M. Southam, M.D.
10:15 A.M.	Break
10:30 A.M.	Host Factors in Relation to the Action of Environmental Carcinogenic Agents – Paul Kotin, M.D.
11:00 A.M.	Chemical Modification of Radiosensitivity – Henry S. Kaplan, M.D.
11:30 A.M.	Possible Tumor Viruses in Man – Arthur W. Ham, M.B.